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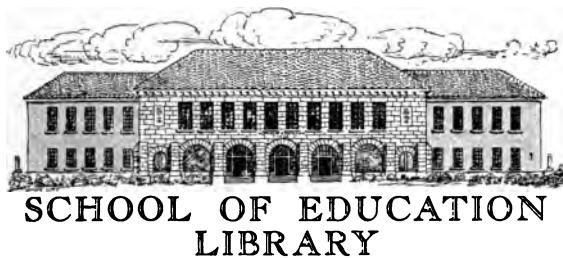
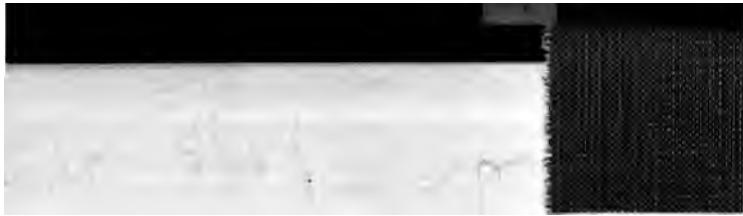
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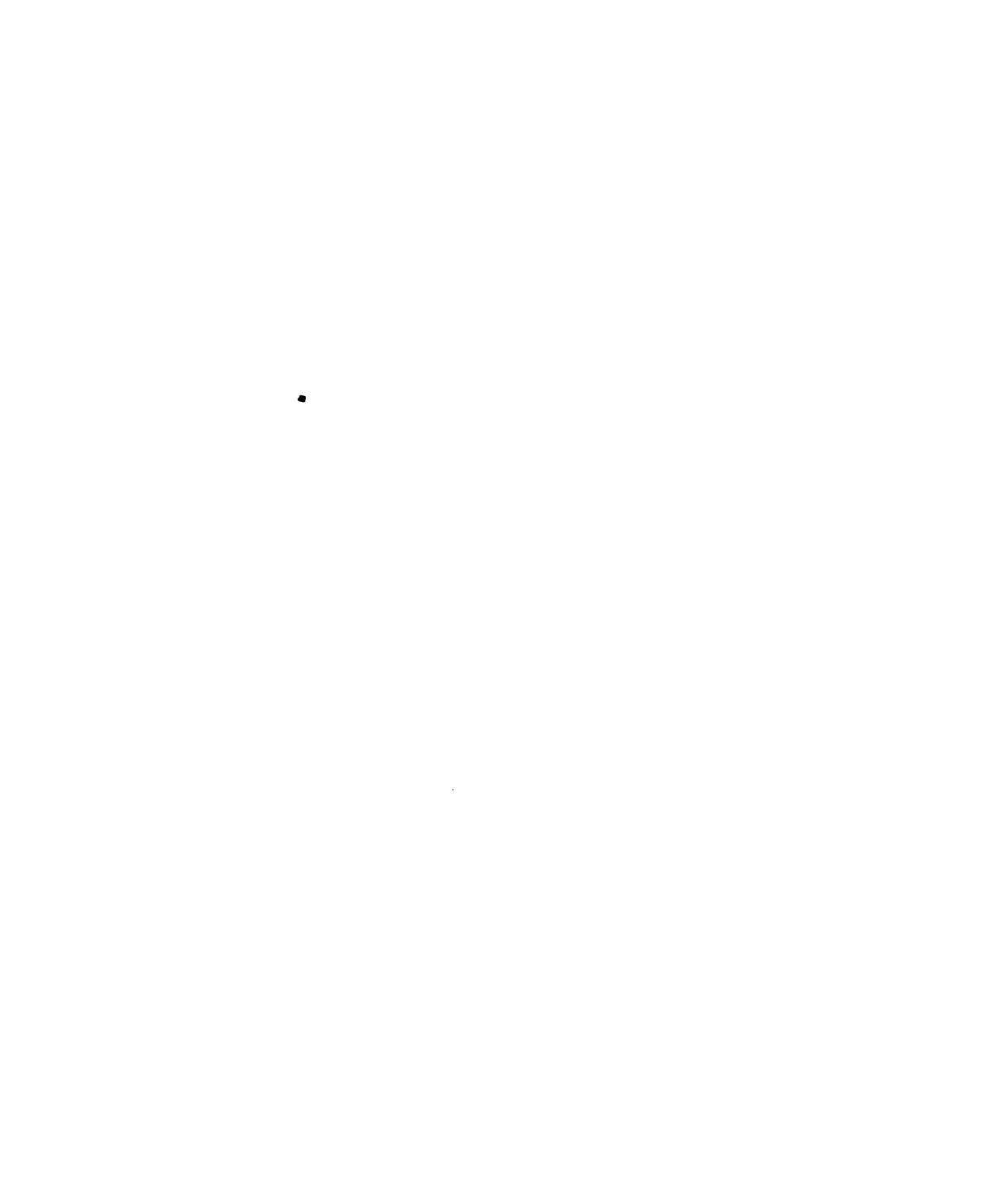


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THE
HISTORY AND SCIENCE^s
OF
EDUCATION

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AND THE PRIVATE SELF-INSTRUCTION
OF TEACHERS

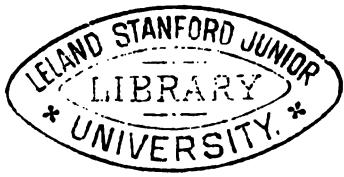
BY

WILLIAM J. SHOUP, M.S.

AUTHOR OF GRADED DIDACTICS; EASY WORDS FOR LITTLE LEARNERS AND
HOW TO USE THEM; SHOUP'S GRADED SPELLER, ETC.

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THE HISTORY AND SCIENCE OF EDUCATION.

THE EVOLUTION OF MIND AND THE CONSEQUENT
SCIENCE OF EDUCATION APPLIED TO THE
ART OF TEACHING.

PREFATORY.

LET no one suppose that the higher departments of the teacher's profession are attained without some effort, or that honorable distinction is the result of chance. There is no royal road to preferment here, any more than in other departments of professional life. Here, as elsewhere,

“ The heights by great men reached and kept,
Were not attained by sudden flight;
But they, while their companions slept,
Were toiling upward in the night.”

If you expect to rise above the rank of a non-professional teacher and become an educator in the higher and better sense of the term, you must make yourself familiar with the laws that govern the development of the human mind ; and you must learn to adapt your teaching to those laws. Having made this advance, you should learn to regard

your calling as a profession rather than a trade, and should expect, too, the more desirable positions and the better salaries.

Let no one persuade you that to gain such honorable position in the higher departments of educational work at the present time is any trivial matter. There are those who will tell you that there *is* no science in teaching, and that for you to study the "philosophy of teaching" is to waste your time. How can these people know, having themselves confessedly never "wasted any time" in the study?

There are those who will tell you that the salaries paid are inadequate to compensate you for any such outlay of time and labor. The salaries paid where non-professional work will pass unchallenged are as high as are paid for a similar grade of work in other callings, and to expect skilled workmen's wages for unskilled workmen's labor is scarcely honest. The additional compensation is usually fully commensurate with the additional preparation required for the higher grades of work.

They will tell you next that teaching is a thankless task. If you are willing to continue on from year to year, going through the same old routine and doing mechanically the work laid out for you by others, do you really think you would be entitled to any superabundant amount of gratitude? Those who find teaching a thankless task are usually those unworthy of thanks. To the teacher, indeed, there is always genuine gratitude from those whose opinions she most highly prizes. It is difficult to see how any one can derive much real pleasure from the thanks of those whom he knows in his secret heart he has not instructed in the most enlightened way. Make yourself worthy the gratitude of those for whom you labor, and you will surely receive it in most generous measure; and

you will then enjoy it, too, in a way you never could have done when, as an honest man or woman, you felt that you did not deserve it. Teaching is not a thankless task, though the falsehood has been repeated so often that many have actually been led to believe it, notwithstanding the abundant evidence to the contrary on every hand.

"But," your Job's comforter will urge, "teachers become narrow-minded and are regarded as of little value in a social way." Undoubtedly too many do grow narrow-minded and lose caste in the community. There is but one way to avoid this, and that is to make yourself broad-minded. The second part of this objection is, however, like the last one considered, much more traditional than real. There is no natural prejudice against the teacher's calling, and on this side of the ocean teachers have always enjoyed high social rank. In exceptional cases it has been because the individual was *unworthy* of association with the better class of people, and not because his occupation or profession was deemed degrading by the broad common sense of the community. In Great Britain, however, until within the present generation, the case was somewhat different; but here, too, the prejudice seems to have been caused by the nature of the men who occupied the teacher's desks. Since the government has taken more direct control of the schools and provided them with teachers worthy of the name, this prejudice has rapidly waned, and ere long the teachers of England will enjoy the high social rank the dignity of their profession justly entitles them to claim.

It is recorded that the ancient Romans, wishing to cast an indignity upon one of their most distinguished citizens, elected him to an office corresponding to that of our road supervisor or path-master. But he filled the office so well, and improved the public highways to such an extent that he raised the office to one of high dignity, and made it

coveted and sought after by those aspiring to honorable distinction.

So let our teachers bring credit upon their office by improving the work of the schools, and we shall hear no more about the teacher's office being less honorable than that of the other learned professions.

Occasionally some Anglo-maniac, aping the English airs of a quarter of a century ago, still attempts to assert his own superiority by reiterating the obsolete assertions of his trans-Atlantic models, that our professional teachers are inferior, intellectually, to men in the "learned professions." In answer to one of these, the author showed in a magazine article, recently, that the educational standard among our professional teachers is much higher than that of any other profession—the ratio of college-trained men and women among them being more than twice as great as that in any other calling; while it was also shown that the standard among those who are commonly classed as non-professional is much higher than that required for entrance into the lower ranks among either doctors, lawyers, or ministers. Will you not do your part in making our calling still more honorable in the estimation of the public—*by making it so in fact?*

HISTORY AND SCIENCE OF EDUCATION.

PART I.

CHAPTER I.

EMPIRICISM AND BEYOND.

Empiricism.—During the world's earlier stages of civilization—before the science of chemistry was known, and while anatomy, physiology, and hygiene were yet very imperfectly understood—the effects of various herbs and drugs in killing or in curing, as the case might seem to be, were carefully recorded.

It is probable that many of the “cures” were due to other causes than the drugs administered; while the deaths or relapses may have often been due to causes other than the apparent ones. But imperfect as the system was, much of it has stood the test of more modern scientific experiment, and is retained by the most enlightened physicians.

The doctors of those times knew little of the nature of disease or of medicines, but people afflicted with certain diseases seemed to be helped in the majority of cases by given remedies, and they, therefore, prescribed these to others similarly afflicted.

Such a system of practice—practice based on the results of observation rather than on scientific investigation of principles—is styled **EMPIRICISM**; the person who employs it is said to be an **EMPIRIC**; and his methods are said to be **EMPIRIC** or **EMPIRICAL**.

The value of any such system must obviously depend on the extent of the observations on which it is based, and the care with which they are made. In any event, it is certainly a much more rational system than the reverse one—of merely assuming a certain course to be correct, and then continuing to practise it in spite of disastrous results.

However contemptuously certain classes of writers may speak of our “practical men,” it is certain that without empiricism the machinery of every-day life would soon get sadly out of gear, and much of it would come to a dead stand. It has been stated, and not without reason, that there is no surer test of the relative degree of civilization of a country than the amount of soap it consumes; but how many of the millions who employ this cleansing agent most abundantly possess any definite knowledge either of the chemical composition of the soap itself or of the real science of its agency in removing soil and grease? Three fourths of us, probably, are as ignorant of these things as are “the great unwashed.” More than this, it must be acknowledged that the most expert chemists are not always models of personal cleanliness.

Neither can it be disputed that much of the world’s most practical work in mechanics, engineering, invention, etc., is done by men who do not possess, in the scientific sense, a knowledge of the principles they employ. Many of our most accurate surveyors could not demonstrate a single one of the formulæ they use if their life depended on the effort, and few telegraph operators, comparatively speaking, are scientific electricians.

Beyond.—Thus far, your work in Didactics has doubtless been largely of an empirical nature—*i. e.*, your conclusions have been drawn from experience rather than from investigations of the nature of the human mind and

the laws of mental development. Recognizing the fact that the great majority of our teachers must for many years to come be drawn from the graduates of the common district schools, with little special training for their work, it is usually the aim of works on education to present for the inexperienced teacher's use such devices and methods, and such adaptation of studies to the age of the pupils, as have been found most practicable under ordinary circumstances. Though these may all be really based on scientific principles, and may have been abundantly tested by the experience of the most trustworthy teachers, it has been deemed prudent to defer the philosophy of education until the student-teacher's age and experience should render such investigations more easy and profitable. It is believed that the inexperienced will, by following such practical directions, teach a much better school than would he who sets out in a way of his own, without chart or compass to guide him, and learns only through experience's proverbially dear school.

The carpenter's apprentice may get along very well in many departments of his work by following the directions of the master-builder, and the edifice when completed may be both as beautiful and substantial as though each hammer and chisel had been wielded by a master hand ; but had the untrained builder attempted to do the work unaided by the architect's directions, it would have proved a most unshapely building when completed; if, indeed, the loose-jointed structure had not toppled over and buried him beneath its rubbish as the reward of his folly. Besides this, he would have wasted much time and material in the "cut-and-try" methods he was forced to adopt in his labor. But there will come a time when this same workman, if he is attentive to the directions given him, will have gained such skill in the use of tools, and such knowledge of the

structure of buildings, that he will weary of doing mere apprentice work, and will aspire to become a master-builder or architect himself. With his present practical knowledge and skill, the gulf will not be an impassable one, and by a comparatively small amount of earnest study he may pass from being the mere follower of the directions of others to be himself a director.

Do you say it would have been much better had this would-be builder studied carefully the science of architecture before laying hand to the hammer or the saw—that he would then have known why each mortise was to be made in each particular beam, and why material of a given kind is most suitable for the foundation, of another kind for the superstructure, and of a still different kind for the roof? No doubt such knowledge would have been valuable, and had not the material been selected for him, or at least had he not been given instruction by the master-mechanic as to what kinds to employ for each particular stage of the work, it would not only have been highly presumptuous, but positively criminal in him to begin as he did. But being informed what kind of material to use, he set to work without stopping to analyze its properties. He assumes, as he has a right to do, that the knowledge of the master-builder is reasonably reliable, follows his directions, and at once begins acquiring skill in the use of tools, and knowledge of the structure of buildings. During the time he is thus engaged, he is learning, too, in the most practical way possible, the various properties of the material on which he labors, and is acquiring a fund of information that will be of infinitely more value to him when he becomes a master-builder himself, than if it had been learned only theoretically.

Then, too, the building *had to be reared* in a given time, and a sufficient number of skilled workmen could not be

procured. The few who could be had were needed either in laying out the work for the unskilled artisans, and directing them in the use of tools, or their labor was demanded in the higher grades of work, which only skillful hands can do at all.

Just so it is in the work of teaching. In the ideal state, all our teachers should not only be trained in the branches they are to teach, but they should also have a systematic knowledge of the nature and functions of the human mind and soul—*i. e.*, they should be trained in mental and moral philosophy.

But it must yet be many years before this ideal state of things can exist; and, like true philosophers, we must take things as we find them, and make the most of them. As Wendell Phillips observes, “Common sense plays the game with the cards it has. It does not ask an impossible chess-board, but takes the one before it and plays the game.”

Most of our teaching must, of necessity, be done by apprentices, but “there is always plenty of room higher up,” and it is presumed that you are now qualified to go a step beyond mere empiricism and investigate the laws of mental and moral development, and the consequent studies and methods of instruction best adapted to the various stages of the child’s unfolding mind.

It is not proposed to give here any thing like a systematic course in psychology or mental philosophy. It is only proposed to present as much of the nature of the mind and its faculties as may be necessary to a rational idea of the underlying principles of common-school education.

ANALYSIS OF CHAPTER I.

Empiricism illustrated by ancient medical practice. The weakness and the value of medical empiricism shown. The usefulness of empiricism in every-day life—mechanics, engineers, telegraphers, even in-

vendors may do excellent practical work without a scientific knowledge of the principles involved.

The student-teachers now better prepared for more scientific work. The teacher's progress illustrated by that of the carpenter's apprentice, who becomes a master-builder.

How the empirical knowledge gained in his apprenticeship may further his later scientific researches.

Why and how apprentice work may be used without injury to the building. Why it was necessary to employ apprentice work.

Why teachers should study mental and moral philosophy.

Since it is impossible, at present, to procure any large number of teachers thus qualified, common sense dictates that we do the best we can with the material we have.

The present work is by no means a treatise on psychology—it merely gives, in a very brief and simple form, the primary laws of mental and moral development, and their practical application to school work.

SUPPLEMENTARY QUESTIONS.

Other causes being equal, in whose hands would you rather trust your life in the case of dangerous sickness—the empiricist, or the scientifically trained physician? Why?

Admitting the fact that a man may be a successful farmer without any scientific knowledge of the chemical composition of soil, fertilizers, etc., can you still state any good reasons why it is desirable that we have scientific agriculturists?

Admitting the fact that excellent work may be done by teachers who know nothing of the theory of education, would you regard this as a sufficient excuse for not studying the theory as well as the practice of teaching?

Can you show that the teacher of an independent rural school has more pressing need of an understanding of the underlying principles of education than has the teacher of any given grade in a city school?

Is the fact that you have taught for some time by empirical methods a reason for, or against, your now studying the scientific principles underlying mental evolution? Why, or why not?

CHAPTER II.

THE DEVELOPMENT OF THE MENTAL AND THE MORAL FACULTIES.

It has been said, "There is nothing great on earth but man, and there is nothing great in man but mind." If by "mind" is meant not only man's intellectual faculties, but his moral faculties as well, this statement will doubtless hold; and since education consists mainly in the developing and the training of these god-like faculties, it must be apparent that there is no secular calling or profession higher than the teacher's.

"**Cultivation of the Senses.**"—But the mind is reached, in childhood and youth, mainly through the senses, and as the senses are acted upon through physical organs, it must be apparent that the training of the mind is influenced to a very great degree by the pupil's physical organization—that is, by influences largely beyond the teacher's reach or control. The organs of the senses are the tools or implements by which the mind is supplied, or by which it supplies itself with food and clothing, so to speak; and it is all-essential that these tools be in proper condition for use.

Theoretically, therefore, a system of education should begin with the cultivation of the organs through which the senses act, as the skillful mechanic grinds and whets or files and polishes his tools. But, practically, the tempering of the mind's tools is a matter far beyond the teacher's reach. He can not give the weak and watery-eyed clear vision, any more than he can make the deaf hear. The

causes which affect these are much too deep-seated in the system to be visibly affected by any amount of "training" which the teacher can give. It may take several generations of the most careful observance of sanitary laws to reproduce healthy and acute organs of sight, hearing, touch, taste, or smell.

Care of the Organs of Sense.—It behooves the teacher, however, to guard with the greatest care such tools as nature has furnished the little ones for the cultivation of their minds. As the carpenter watches his apprentice to see that he does not dull or ruin his saws and planes and other tools by cutting into half-hidden nails or grit, so the faithful teacher will watch that her apprentices do not ruin their infinitely more valuable tools of the mind by careless using. This is especially true of the eyes—the organs of the highest of the senses. While she can not cure weak eyes, she may, by proper vigilance and the influence which her position affords her, prevent their further injury, and here the old saying that "an ounce of prevention is worth a pound of cure" has peculiar application. The judicious tempering of the light in a school-room for a single term may do more toward acute vision in a community than seven generations of the strictest observance of sanitary conditions in the way of curing the mischief when it has once been done.

It is the true province of the teacher, therefore, to train the mind in the *proper using* of such tools as nature, or perverted nature, has provided it.

Physical education, the tempering of the mind's implements, *is* the foundation of education. Ay, it is even more than this—it is the sub-stratum of rock, or clay, or mud, or shifting sand, on which the structure stands or falls, but it is usually laid long before the teacher has any thing to do with the pupil.

The Faculties of the Mind.—Before discussing the various faculties of the mind in detail, the following general facts regarding intellectual and moral development should be first considered :

The human mind, though in many respects a most complex organism, is one indivisible substance, having various states and modes of action ; these states and modes of action are called **FACULTIES**. The various faculties follow certain laws of evolution ; they may be developed by being properly trained on appropriate themes, or they may be dwarfed and stunted by being exercised on inappropriate subjects, or by being overstrained. In addition to this, they may admit of improper or abnormal development. The mind communicates with the external world through five channels—Touch, Taste, Smell, Hearing, and Sight. The faculties are first exercised on material objects and the phenomena of the external world through the senses ; these material aids, therefore, greatly promote the activity of all the faculties of the mind.

Though the same faculties exist in most minds, their natural force differs widely in different individuals, and the same processes that will develop them in one child may be inadequate in another ; still, there are certain general principles that apply to the great mass of unfolding minds. There are certain of the faculties, such as attention, that require some effort of the will to bring them into action—these are called voluntary faculties. And since the child is naturally of a social nature, and since pleasure is one of his chief incentives to action, he is usually best trained in company with others of his own age, and by whatever means the most pleasure may be commingled with the effort of attention. Kind nature has also provided a certain amount of refining pleasure in the healthful exercise of the faculties ; and the love of the beautiful and of the

wonderful are also actuating principles in the child-mind ; their gratification is, therefore, to be considered of great importance in all rational systems of instruction. Modes of instruction which violate these principles are apt to give rise to harsh and cruel modes of discipline, and to turn the hearts of the little ones away from that which would otherwise have proved their chief delight.

The repetition of the same or similar acts gives rise to habit. The habits of attention and concentration of the mind to any subject are the key-stones of education. It is not to be expected, however, that the habit of concentrating the faculties upon a single point, *for any considerable length of time*, can be fully attained by children ; their love of change and novelty precludes this. Let the primary teacher ever bear this fact in mind.

Some of the faculties naturally repose or lie comparatively dormant until a later period of life. The attempt to develop these faculties before their natural time is doubtless one of the chief causes of children's distaste for school.

The faculties are never so vigorous as when they are exercised voluntarily, and they are never thus exercised on unnatural subjects or before their natural time. The natural teacher is, therefore, the one that studies to place before the pupils such mental aliment as they, at that particular stage of their intellectual development, most crave. Children have a natural craving for knowledge, as well as for occupation, and they need only to be directed to the proper mental nourishment in order to educate themselves to a very large degree.

The vigor of any one of the faculties, and the desire for its further development, increase as it has been judiciously exercised. The sooner a faculty is called into *healthful* action, the greater, ordinarily, will be its vigor ; but the teacher must be sure that the action *is* healthful. He can

not, therefore, have too thorough knowledge of the laws of mental evolution, nor can he be too vigilant in studying the development of his scholars' minds.

The cultivation of the reasoning faculties must not be too long delayed, but it is ruinous to attempt to force these before their natural time, as is so often done in our common-schools. The faculties, in their evolution, act and re-act, more or less, upon one another. Thus, the moral faculties are stimulated by the development of the intellectual faculties, and *vice versa*. These should, therefore, be cultivated simultaneously.

For the purpose of cultivation, the faculties may be arranged in certain groups, but the cultivation of one of these is apt to develop others more or less. Our subjects, as well as our methods, of instruction must, of course, be varied to suit the different classes or groups of faculties under training.

The human mind, even in early infancy, is far from being a sheet of blank paper on which impressions are written by the hands of the various senses. There is a living soul back of all this that reads and classifies all these impressions.

ANALYSIS OF CHAPTER II.

The mind of man is the noblest work of the Creator; to train it is a lofty calling.

The mind is reached through the senses—the senses are the tools of the mind. Theoretically, then, education should begin with cultivating the eye, ear, etc.

Practically, this lies beyond the teacher's sphere. The teacher should, however, carefully guard from injury the sight, etc., of her pupils.

•

The teacher's province is to train the mind in the *use* of the senses.

General facts of mental and moral development.

The mind an invisible entity—its faculties.

Development of the faculties by training—Stunting—Abnormal development.

Five channels of communication with the external world—the mind first developed through these.

General principles that apply to unfolding minds.

The voluntary faculties. The use to be made of companionship, of the pleasure of mental effort, of the love of the beautiful and of the wonderful.

Habit—Attention and Concentration—Young children can not concentrate their minds on a subject, except for a very brief time.

Some of the faculties partly dormant until a more mature age.

Importance of developing the faculties in their due order, and of exercising them upon appropriate subjects.

The natural love of knowledge.

The vigor of the faculties increases with proper exercise. They should be called into healthful action as early as may be—hence the importance of teachers knowing the laws of mental development.

The faculties, in their development, stimulate one another. The moral and the mental should be cultivated simultaneously.

The faculties may be arranged in groups—the subjects of the methods of instruction will vary according to the group under training.

The infant mind is not a sheet of blank paper for the senses to write impressions on.

SUPPLEMENTARY QUESTIONS.

What are some of the ways in which pupils may injure their sight?

What means should teachers take to prevent this?

Are any of the other organs of the senses liable to be injured in connection with school duties? If so, what, and how?

Is it right to hold the pupil to account for the imperfect learning of lessons when there is reason to believe that his failure is due to natural inability?

What is your opinion of the teacher who ridicules his pupils under such circumstances?

What do you think of the propriety of such things as "dunce blocks" and "dunce caps" in school?

Are the faculties apt to be symmetrically developed in self-educated men? Why, or why not? Give some noted examples.

Are the large classes in our graded schools well calculated to meet the various shades of natural ability in pupils? What statements in this chapter apply to this question?

It is stated in this chapter that the love of the beautiful and the won-

derful are actuating principles in the child-mind, and their gratification is, therefore, to be considered as of great importance in all rational systems of instruction. In what ways can the teacher apply these in the ordinary school?

How long may you reasonably expect to hold the attention of the six-year-olds to any given point?

When their attention begins to waver, what should you do?

If you find it impossible to hold your pupils' attention at all to any subject you may be trying to present to them, what should you conclude?

CHAPTER III.

THE OBJECTIVE PERIOD OF LIFE—THE KINDER- GARTEN.

Childhood: The Objective Period.—The various stages of man's life have been differently classified by different writers of high authority. Pythagoras gave but four, while others give five, six, seven, etc., and Solon insists on ten such periods or divisions in our career from the cradle to the grave.

But whatever artificial sub-divisions philosophers may make, and however difficult it may be to draw exact lines of demarkation, two great periods are as strongly marked as are those of spring and summer—viz.: manhood or womanhood and the period which precedes it.

While it is true in a certain sense that “men are but children of a larger growth,” the added growth has brought with it many new and greatly altered conditions, both of body and mind. “When I was a child I spake as a child, I understood as a child, I thought as a child ; but when I became a man, I put away childish things,” wrote the inspired and most learned apostle ; and he but recorded the experience of the millions of every land and nation. Up to this great turning-point, the child has been largely dependent upon others—his parents and his teachers ; but henceforth he was designed to provide for himself or to assume charge and instruction of others.

This first great epoch of human life—the age when we are in a measure dependent upon others for guidance and support—may be roughly divided into three periods, viz. :

Childhood or infancy, boyhood or girlhood, and youth. The mental traits of these three periods are as different as are their physical characteristics, and each accordingly demands its own peculiar studies and methods of instruction.

Childhood, or infancy, embraces that period of our life extending to about the seventh year. It is characterized by extraordinarily rapid growth and development of all the physical organs.

This stage in the child's mental growth has been not aptly termed "The Objective Period." That is, the little one is now most largely dependent for its mental food on objects foreign to or outside of itself. Its mind is much more receptive than self-active, its manifestations of self-activity being chiefly in the way of efforts to retain and classify the myriads of impressions which come to it from without, through the soul's five open gateways—tasting, seeing, hearing, feeling, smelling. This is, therefore, the great preparatory period of intellectual development.

Perceptive and Conceptive Faculties.—The faculties most prominent in this period of the child's career are those known as the PERCEPTIVE FACULTIES—that is, those faculties which, in the main, have to do with the reception of impressions from without through the senses. It must also be borne in mind that, especially toward the close of this period, the mind begins to have more or less definite conceptions of things as the result of impressions received. It begins to think of the qualities or properties of things, aside from the things themselves, and we say that the CONCEPTIVE FACULTIES are being developed.

The memory is especially active, and impressions now made are apt to be the more lasting. This fact should be utilized by every primary teacher, though care must be taken, at the same time, not to abuse this opportunity by storing the soul's workshop with a lot of material which

it will not be called upon to use for years to come, and which will then be found so rusted by disuse as to be practically worthless.

The most natural educators of the little ones are now their mothers, and the author has small sympathy with those philosophers who would either rob the mother of this sacred office or excuse her from its duties. The Creator has implanted in her heart an instinct deep as the very fountains of her soul, which insures much closer sympathy from her in her offspring's wants than any others can have, no matter how carefully trained they may be in the laws of physical development and mental evolution. God pity the children who are reared without a mother's tender love and watchful care ; and God pity, too, the woman who assumes motherhood lightly esteeming the care and instruction of her little ones !

There is a time, however, toward the close of this Objective Period of the child's career—say, during the time he is from five to seven years of age—when the mother's care is often largely drawn to her more tender offspring, and when she needs the devoted primary teacher's aid.

Instruction during this period must be in the most rudimentary parts of the scholastic branches, and in its earlier stages it were better, no doubt, that *no* instruction in the ordinary studies of the schools be given. This is pre-eminently the period for objective teaching, and as it is characterized by intense activity and a love for play on the part of the little learner, kindergarten methods are especially adapted to it. A brief statement of this system is therefore here appended.

A Brief Statement of Froebel's Kindergarten System.*—The Kindergarten (Ger., *children's garden*) is a peculiar system of education, founded by Frederick Froebel,

* Adapted from the "Dictionary of Education and Instruction."

designed to precede all other elementary training, and to prepare the child for regular instruction by exercising all its powers, so as to render it *self-active*. While the reformers of education before his time, including Pestalozzi, whose assistant Froebel was, treated the youthful mind, more or less, as a passive recipient of truth, goodness, and beauty, it was his fundamental idea to set the child to do whatever it could be induced to do as a kind of amusement, exercising its observing faculties in connection with its playthings and games, and thus to create in it an interest in learning. He discovered, by means of half a century's attentive practice in teaching, in association with many other excellent educators, that the faculties of many children are stunted in infancy and earliest youth by the want of appropriate mental food ; that every child may be developed (may develop itself) into a self-educator by appropriate amusements ; and that, in this manner, pleasure may be made the most efficient instrument in the first stages of education. He, therefore, studied all the plays and games in use from the most ancient times in order to find their special adaptation to mental and bodily growth, and thus formed a complete philosophical system of early intellectual culture. This culture was to begin in the earliest stages, with ball plays, accompanied by snatches of song and rhyme ; later with a sphere, a cube, and a cylinder of wood, used for various amusing exercises, and calculated to enliven the attention and increase the self-activity of the child. The two little books for mothers, which contain his suggestions for this purpose, disclaim any merit of invention ; he considers them derived simply from a diligent observation of the methods of many excellent and successful mothers. But it was not from books alone that he intended mothers should learn how to train their children. They were to be educated, as young children, in a *kindergarten*, and afterward, before graduating

from the upper classes, to learn the art of infant education in a model *kindergarten*. It was in this way that he hoped to render, in the course of time, all mothers true educators of infancy, the centers of happy family circles, and the priestesses of a higher humanity, so that they might be "in harmony with themselves, with nature, and with God."

But mere family education being liable to one-sidedness and exclusiveness, social education should begin early in order to complement the former. During a part of the day the child should be in company with many other children of the same age, he said, and should engage in such plays as supply, in a gradually ascending scale, proper food for the mental and bodily appetites and functions, while making the company of little ones as happy as possible. This can be done only under the guidance of a true teacher, who should be a woman, capable, by natural endowments and previous study, to take the place, in this respect, of the mother. The locality should be a hall in a garden, with flowers, shrubs, and trees, each child having his own flower-bed, so that he may learn how to raise plants and to enjoy nature. The playful occupations of the pupils comprise a great variety of plays in a given order, which, however, should not be absolutely fixed, but should afford a healthy change, without inducing habits of imperfect attention and restlessness. None of these occupations were the invention of Froebel; they had all been practised more or less before his time. But their combination into a harmonious whole, their adaptation for mental food in every direction, and their development in detail, must be set down as his creation; and the experience had with them in many hundreds of kindergartens is said to justify the wisdom of the system. There is still much controversy among the followers of Froebel themselves in regard to minor details; and some improvement has been made upon his own first practical realization

of the idea, which, from insufficiency of means, could not be all that he desired; but the indefinite perfectibility of the system in practical details, according to its principles, insures its progressive success.

The exercises of the kindergarten are alternately carried on in a sitting, and in a standing or walking position, for the sake of a salutary change, and are partly such as can, without special training, be guided by any good teacher; namely, singing; the reciting of child-like poetry, committed to memory by means of the teacher's frequent repetition; light gymnastics, marching exercises, and easy ball plays; acting the doings of men and animals; all these accompanied from time to time with song, or turned into objective lessons by frequent conversations on the things mentioned or represented; also, amusing employment with playthings called *gifts*, of which there are several sets. The guidance of these occupations requires a practical training on the part of the teacher, and a theoretical study which can never be too thorough if the pupil's mental and moral development is to become what Froebel intended it to be.

The teacher is not to teach them, but to lead his pupils by suggestions conveyed in questions or conversation, so that the child may become inventive. The teacher is to abstain from all learned lore—from using abstract expressions. Abstract notions are severely banished from the kindergarten; it is merely concrete things, which the child can learn through the senses, and can clothe in his own language, and can become familiar to him by his own mental assimilation. Neither is discipline to be maintained by authority, or by any mechanical means, but by the suggestions of the teacher, and by the pupils' own absorption in the interest of their occupations.* Thus children are, at an

* This is the way the case is most commonly stated by the more radical adherents to the principles of Froebel; but in practice it requires some modification. Said

early age, enabled to discipline themselves through pleasant employment; to submit to the will of the majority of their equals, on the one hand, or assert, on the other, their own free volition, if they can induce others to agree with them. Thus, they are to take their first lesson in moral self-government.

Owing to the necessity of special skill and training in order to conduct a kindergarten efficiently, many persons who undertake this work fail, through want of preparation, to produce the results designed. In this way, spurious kindergartens have caused much complaint, and brought considerable discredit upon the system. The test of a good kindergarten is its obvious effect upon the pupils in exciting cheerfulness, intelligence, activity, and a fondness for the school work. If, on the other hand, the children dislike the school, it is an evidence that there is a want of

Miss Brown, of Boston, in her paper on the "Application of Froebel's Principles to the Primary School" before the National Teachers' Association at Chicago:

"In our schools there should be more of that wise winning, by which a child is led to do the right cheerfully and willingly. Still, even in the kindergarten, the little ones should feel the power behind the throne. We believe that children have an intense respect for law and order, however careless they may be themselves. It is right, it is imperative that a child shall feel himself obliged to do certain things, and refrain from doing others, because it is a required or expected thing. And if the kindergartner or teacher be as firm as she is winning, the children will not chafe under her little restrictions. There should be times in the kindergarten when the children are required to remain quiet for a time, while in some position not irksome. If such little devices are not employed, how else can the child become accustomed to the long sittings in the primary schools?

"Do not some kindergartners err from an excess of patience? We have more than once seen the kindergartner stand over a naughty child for half an hour, striving to win him to do a thing; whereas a wise mother would have settled the matter in about thirty seconds by insisting upon prompt obedience both as duty and privilege. We believe most heartily in that wise direction of the will that secures a voluntary obedience from the child. Personal issues are to be avoided in the school and kindergarten as well as the home. Still, the child must realize that obedience is not always to be a choice with him; that he owes it to others who have a right to expect that unquestioning, cheerful service. Some of our most loyal kindergartners have maintained that we do violence to the child's nature by insisting. Yet how shall he escape this great burden laid upon him by nature and life?"

tact and skill in its management. There may, indeed, exist in such a school all the occupations recommended by Froebel, and each may be used according to the established formula; but if the spirit in which the exercises are to be conducted is missing, if the treatment is mechanical, all the moral influence which should spring from the cheerful self-activity of the child is lost. If, too, the teacher shows always the calm and dignified deportment of the ordinary class disciplinarian, instead of entering with all her heart into the harmless joy from which the child's self-government is to take a fruitful growth, and calming only the troublesome excess of this mirth by now and then a look, a word, or a gesture, she is not well-fitted for her calling. A genuine kindergartner will, like the best of mothers, take a lively interest in remedying, as far as possible, the bodily, mental, and moral defects of every child under her care—uncleanly and disorderly habits, want of attention, stammering, color-blindness, a bad gait or posture, imperfect articulation, etc. She will, in this way, earn the gratitude of the children and their parents, and exert a great moral influence. Her efforts in this respect are, in a great measure, facilitated by the pliability of the child's powers, as well as by its desire to avoid ridicule, and to enjoy the society of its comrades. Abundant experience teaches that there need be no incurable cases of the above kind among children who have the full use of their senses; that all children may learn drawing, singing, correct enunciation, and many other arts and accomplishments that are by common prejudice pronounced attainable by those only who are specially gifted. It is evident, therefore, that a kindergartner can hardly be too well educated; and, also, that no education repays so abundantly its cost.

ANALYSIS OF CHAPTER III.

Various stages of life reckoned by different authors.

The great natural division into the two periods of minority, and manhood or womanhood.

Three divisions of minority: infancy, or childhood; boyhood or girlhood; and youth.

THE PERIOD OF CHILDHOOD: Extends to about the seventh year. Characterized by rapid growth. The Objective Stage. The preparatory period. Perceptive Faculties most prominent. The Conceptive Faculties also begin to play an active part. Memory peculiarly retentive. How this fact should be utilized.

The mother the most natural educator of the very young child. When the primary teacher's aid becomes useful.

Object teaching and instructive plays are better adapted to beginners than the usual school studies.

BRIEF ACCOUNT OF THE KINDERGARTEN: Its fundamental idea is to render the child's powers self-active by free exercise. The child is thus trained to educate himself.

Froebel studied the games of all times and nations, to select and arrange those most conducive to the happy and symmetrical development of the child.

The kindergarten training was at first intended to be used both by mothers and teachers. The kindergarten should have a garden attached where the children may play and work.

Kindergarten exercises consist of marching, singing, playing games, playing with the gifts, etc.

The teacher must have a thorough special training.

No abstract expressions are to be used. Discipline must not be maintained by authority—Some modification of this statement.

No kindergarten which children do not enjoy is a good one.

It should remedy personal defects and bad manners.

The kindergartner needs special gifts, thorough training, and wide knowledge.

SUPPLEMENTARY QUESTIONS.

What is apt to be the influence on a child's character by removing him from his mother's care during a considerable portion of each day, before he is about five years of age?

Can you trace any connection between this and the fact that the children of the very wealthy often turn out badly?

What about the children of the wretchedly poor?

Would you regard kindergartens for ordinary children, below the age of four or five, a blessing to the little ones or a misfortune?

What would you think of their influence on the wretched children of the streets, in the great cities, with no mother worthy of the name?

What of their influence on the children of the very wealthy and others whose children are so often given over to the care of nurses and other domestics?

What influence would their *general* introduction, at this tender age, be apt to have? Why?

CHAPTER IV.

HOW THE KINDERGARTEN SYSTEM MAY BE MADE SERVICEABLE TO THE ORDINARY SCHOOL.

Froebel's Gifts.—To carry out more practically his idea of inducing the child to educate itself through pleasurable employments, commonly called play, Froebel devised a system of apparatus to be *given* to the children, as material for interesting and instructive occupation. Hence the name “*gifts*.” Later teachers have improved and extended Froebel’s “*gifts*,” until the set now embraces twenty. They are here given for *reference only*:

1. *Six soft balls* of various colors, the use of which is to teach *color* (primary and secondary), and *direction* (forward and backward, right and left, up and down); also to train the eye, and to exercise the hands, arms, and feet in various plays.
2. *Sphere, cube, and cylinder*, designed to teach *form*, by directing the attention of the child to resemblances and differences in objects. This is done by pointing out, explaining, and counting the sides, edges, and corners of the cube, and by showing how it differs, in these respects, from the sphere and the cylinder. The manipulation by the child should, of course, precede this demonstration by the teacher. The child’s self-activity will prompt it to place these forms in various positions and combinations, so as to realize in its conceptions everything that is analogous or dissimilar in them.
3. *A large cube* divided into eight equal cubes, the object being to teach both *form* and *number*, also to give a rudimental idea of fractions.
4. *A large cube* divided into eight oblong blocks, designed to teach *number* and a simple variety of *form* (cube and parallelopiped).
5. *A large cube* divided into twenty-seven equal cubes, three of the

latter being subdivided into half cubes, and three others into quarter cubes (forming triangular prisms). This is a further continuation and complement of (3), but affording much ampler means of combination, both as to *form* and *number*.

6. *A large cube* so divided as to consist of eighteen whole oblong blocks, three similar blocks divided lengthwise, and six divided breadthwise—a still further continuation of the ideas involved in (3).

7. *Triangular and quadrangular tablets* of polished wood, affording the means of further exercise in reversing the position of forms and combining them; and presenting, in addition, illustrations of *plane surfaces*, instead of *solids*, as in the previous gifts. This arrangement, placing the surfaces after the solids, recognizes an important principle of education—that we should pass from the concrete to the abstract, the square being a side of the cube, and the triangle deduced from the prism.

8. *Sticks for laying*: Wooden sticks, about thirteen inches long, to be cut into various lengths by the teacher or pupil, as occasion may require. These sticks, like most of the previous gifts, are designed to teach numerical proportions. The multiplication table may be practically learned by means of this gift. The forms of the letters of the alphabet and the Roman and Arabic numerals, may also be learned.

9. *Rings for ring-laying*, consisting of whole and half rings of various sizes, in wire, for forming figures ; designed to develop further ideas of form ; also to afford a means for developing constructiveness of the pupils, and practice in composing simple designs.

10. *Drawing slates and paper*, consisting of slates ruled in squares, and paper ruled in squares, for the purpose of enabling the pupil to draw or copy simple figures in a methodical manner, the ruling aiding them in the adjustment of proportions.

11. *Perforating paper*, ruled in squares on one side only, with perforating needles, affording more advanced practice in producing forms and executing simple designs.

12. *Embroidering material*, to be used for transferring the designs executed on the perforating paper, by embroidering them with colored worsted or silk on cardboard.

13. *Paper for cutting* : Squares of paper are folded, cut according to certain rules, and formed into figures. The child's inclination for using the scissors is thus ingeniously turned to account, and made to produce very gratifying results.

14. *Weaving paper* : Strips of colored paper are, by means of a steel

or wooden needle of peculiar construction, woven into a differently colored sheet of paper, which is cut into strips throughout its entire surface, except a margin at each end to keep the strips in their places. A very great variety of figures is thus produced, and the inventive powers of the child are constantly brought into requisition.

15. *Plaiting material*, including sets of flats for interlacing, so as to form geometrical and fancy figures.

16. *Jointed slats (gonigraphs)*, for forming angles and geometrical figures.

17. *Paper for intertwining*: Paper strips of various colors, eight or ten inches long, folded lengthwise, used to represent a variety of geometrical and fancy figures, by plaiting them according to certain rules.

18. *Paper for folding*, consisting of square, rectangular, and triangular pieces, with which variously shaped objects may be formed.

19. *Material for peas work*, consisting of wires of various lengths, pointed at the ends, which are passed through peas that have been soaked in water for six or eight hours; these are then used to imitate various objects and geometrical figures. Cork cubes are sometimes used instead of peas, as being more convenient.

20. *Material for modeling*: Modeling knives, of wood, and modeling boards, by means of which various forms are modeled in beeswax, clay, putty, or some other soft substance.

The Kindergarten Spirit.—“What has the kindergarten to do with the work of the ordinary school?” does some one ask? Much, in many ways. First of all, it illustrates the great principle of the necessity of making school-work attractive to the little learners. If it only induces our teachers to put just a little of the kindergarten *spirit* into the primary work of the district school, it will repay a thousand-fold the little time we have here devoted to it. If it impresses on the minds of our teachers the fact that the child-mind deals with the concrete rather than the abstract, and if it induces them to conform their instruction to this fundamental principle, it will make them much better teachers of the little ones than the great majority of their predecessors.

If it succeeds in impressing the truth that activity is one of the Heaven-implanted laws of childhood, and induces our teachers to furnish employment for each little pair of willing hands, it will bring joy and gladness to many a childish heart, and engender such a love for school that study will be a delight. If it impresses upon our primary teachers the utter unreasonableness of expecting the children to sit quiet three-quarters of their school day, with nothing whatever to occupy their attention save looking into space's vacancy and doing their utmost *not to think of any thing*, it will have saved many a budding mind from blight.

In addition to all this, it is believed by many of the most thoughtful educators that the highest utility of the kindergarten system is attained *when it is applied in connection with primary school work* rather than when entirely divorced from it.

It is true that love for play is one of the chief attributes of the little learner's soul, and there can be small doubt that the Creator designed this attribute as much for an implement of self-education to the child as for a means of letting sunshine into his little heart; but toward the close of the "Objective Period" of his career—the time from five to seven in the average pupil's life—more serious occupations, like those of the best primary schools, may well be interspersed. While it is emphatically true that "all work and no play makes Jack a dull boy," it is doubtless equally true that all play and no work may tend to make him frivolous.

The amount of kindergarten spirit, or actual kindergarten occupation, which can be interwoven with the ordinary school routine, will depend largely on the teacher's own originality—in fact, the success or failure of the work itself must rest to a very great degree on this, since many of the "gifts" admit of almost endless variety of application.

Applications of the Gifts.—Let us glance at a few of

these variations—such as any bright teacher of a primary room in a graded school, or of a district school, may easily evolve if it is undertaken in the true spirit of a teacher. A few minutes' work of this sort occasionally would certainly be time well spent.

Take, for example, the "third gift." These little cubic blocks may easily be used, not only to amuse and instruct the child by drawing his attention to their most obvious qualities, but they may also be employed to cultivate in him the sense of the beautiful and tasteful, as the result of order and harmony and symmetry. An important principle of Froebel's system was to accustom the child to develop symmetrical forms and figures by slight changes and alterations, rather than by destroying the whole original figure, and then reconstructing it entirely anew. There is, indeed, much more in such a habit than at first appears upon the surface, as every scientist, or artist, or skilled mechanician will affirm.

Thus, as Mr. Hoffman so aptly illustrates, place first the eight cubes before the child as they stand in the box. Then induce him to place one of the upper layer to each of the four sides of the lower, beginning at the middle and proceeding to the right, as shown below :



*Face to double
face.*



Face to face.



Edge to edge.



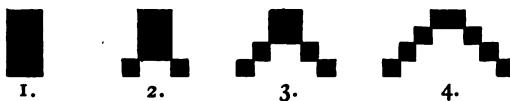
Face to face.



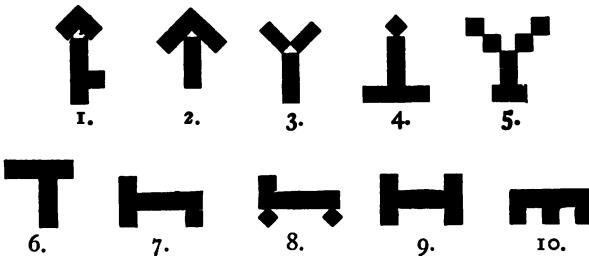
*Face to double
face.*

Or such as the following : First make an oblong, four blocks long and two blocks wide; and when alterations are made, let them be made with both hands on each of the two columns at once. Thus, take the two from the upper end of figure 1 and place them at the bottom, edge to edge, as in figure 2; then move two more from the top

with the two hands simultaneously, as shown in figure 3; then two more, evolving figure 4; and then, by the reverse process, the three preceding forms may be evolved from 4, and so on through an almost endless number of symmetrical forms, which any ingenious teacher may easily discover.



The child not only loves play, but he loves dearly well to "make something," and this craving, to be of use in the world, should be early encouraged and cultivated. Let him, therefore, construct numerous forms of utility, his vivid imagination supplying what the figures lack in detail. Thus, a key, (1), will, by slight changes, grow into an umbrella, (2); a goblet, (3); a candlestick and burning candle, (4); a fruit dish, (5); a hammer, (6); a sofa, (7); a wagon, (8); a bench, (9); a table, (10); etc., etc., etc.



With the fourth gift, these industrial forms may be extended to a much wider range of objects, and the embryo architect, or smith, or sculptor, may here find ample food for his inventive genius or occupation for his ever-willing hands.

With the "fifth gift" a vast amount of arithmetical and

geometrical work may be introduced—much more than any ordinary primary school usually attempts to do.

From these simpler forms the little ones may be led on, step by step, until they will have laid in a fund of information or experience that will make the transition to subjective work or abstract reason natural and easy. It will not now be so difficult for the mind to look inward and study itself, for the obvious reason that it now finds something tangible to study there. And all this, if judiciously introduced by the teacher, need not interfere in the slightest with the pupils' regular school work; but, by breaking up its monotony and by supplementing it in various ways, will rather help it along, and lay a broad and deep foundation on which to build for the future.

ANALYSIS OF CHAPTER IV.

WHAT HAS THE KINDERGARTEN TO DO WITH THE WORK OF THE ORDINARY TEACHER? It shows the value of making school work pleasant. Impresses the fact that the concrete precedes the abstract, that activity is a necessity to a child—that it is cruel to make him sit still and do nothing.

Many believe that kindergarten methods are of more value as aids to primary work than they are when used alone.

The love of play as an educational force.

With children from five to seven, work may well be interspersed with play.

Much depends on the teacher's ingenuity.

USES THAT MAY BE MADE OF THE GIFTS IN AN ORDINARY SCHOOL: Use of the Third Gift to teach order and symmetry. New symmetrical forms developed by slight changes. Illustrated exercises with the eight small cubes.

The child loves to "make something." How this desire may be gratified in the use of the Third Gift—in that of the Fourth Gift.

Primary arithmetic and geometry may be taught with the Fifth Gift.

Real progress that may be made by the use of these exercises.

They will not interfere with regular school work.

SUPPLEMENTARY QUESTIONS.

When primary teachers are exhorted to carry "the kindergarten spirit" into their work, what do you understand the injunction to mean?

When it is stated or implied in this chapter that the beginners in our district schools are often required to sit three fourths of the time with nothing whatever to do save trying to "keep still," are the facts at all over-stated?

How may the teacher very easily procure Froebel's Third Gift without buying it?

Can you suggest any other way by which the lesson on developing symmetrical forms and figures by slight changes may be impressed?

What other objects than the ones given in the figures may be made with the Third Gift? With the Fourth Gift?

What other means than the ones suggested in the text can you suggest for encouraging the child's desire to be of use in the world? (Let this subject have much more than a mere passing thought.)

State some of the arithmetical and geometrical work which you think might be profitably illustrated by the Fifth Gift.

What others of the kindergarten Gifts do you think you might use to advantage in primary teaching?

Should the games of the playground ever be utilized for educational purposes in any such way as are the in-door kindergarten occupations? Why, or why not?

Is it true, as is often stated by the kindergarten teachers, that allowing a child to use any of the kindergarten Gifts carelessly—that is, without following out the purpose for which the Gift was especially designed—is detrimental to his habits of thought? Why, or why not?

Would, or would not, the same objection hold against letting children play with building blocks, etc., at home?

CHAPTER V.

OBJECT LESSONS ESPECIALLY ADAPTED TO THE LATER PART OF THE "OBJECTIVE PERIOD" OF THE CHILD'S SCHOOL LIFE.

Object Lessons.—As before stated, the objective period of the child's life is the age of all others best adapted to OBJECT LESSONS. The reason is obvious: the little learner's mind has been principally engaged thus far in the reception of impressions of external objects through the senses, and he has, by the time he enters school, reached that stage of intellectual development when both theceptive and perceptive faculties are in more or less active operation. He is now prepared to idealize and generalize his impressions more or less; and he naturally desires to clothe them in language.

In most of our cities and towns, and in many of our country districts, too, for that matter, "Object Lessons" will be found in the prescribed course of instruction. The framer of the course of study may never have seen a genuine object lesson given, and he may not know any one who has seen one; but the expression sounds well, and gives the course an air of "up-with-the-times," so it is put in on general principles. The result is, in many cases, that the teacher, who has never seen any thing of the sort, makes an attempt to carry out the requirements of the schedule, and succeeds about as well as one would in giving a lesson on the violin, without previous training on that much-abused instrument. These abortive attempts at giving object

lessons have, in many sections, brought the system into disrepute; and there is undoubtedly much truth in the assertion that the object lessons, as conducted in the majority of our schools, are the most *objectless* of all lessons.

Many, in attempting to conduct these exercises, seem to have no purpose in view further than that of complying with the requirements of the course of study, and so the exercise becomes frivolous, and therefore positively harmful to the pupils' habits of thought and recitation. The exercise that leaves no definite impression of its object on the minds of the little ones is worse than a failure. It cultivates purposeless habits, creates in the minds of the children a distaste for the exercise, and in some cases a disposition to turn the whole matter into ridicule—a state of affairs which, it is needless to add, is in the highest degree detrimental to discipline.

Misconception of True Purpose.—The failure in giving these lessons has been due in many other cases to a misconception of their real purpose on the teacher's part. In an examination which the author assisted in conducting some years ago, the applicants were asked to explain what they understood object lessons to be. The great majority answered, in substance, that they consist in *holding up objects before the scholars and then telling them all about the objects thus shown.*

Such a lesson, while it might impart a little information, by the pouring-in process, would utterly fail in the real purpose for which these lessons are designed—that of cultivating the perceptive and the conceptional faculties of the little learners.

The real object of these exercises should be to induce the children to see with their own eyes, hear with their own ears, feel with their own fingers, taste with their own tongues, then idealize these perceptions, and give their

conceptions expression in accurate language—first spoken, then written.

It has been held by some educational writers that one of the prime purposes of the object lesson is the cultivation of the senses themselves. With all due respect for the opinions of these writers, the author does not believe that the amount of such teaching which our schools can give would be liable to sharpen the senses of our pupils to any appreciable degree. He does not believe that children, however carefully trained in object lessons, would have any sharper vision, any more acute sense of hearing, touch, taste, etc., in the ordinary sense of the terms, than have those who have had no training of the kind at all in the school-room. But there are "those who, hearing, hear not, and seeing, see not," in natural as well as in spiritual things. It is not the province of the object lesson to provide our pupils with the senses themselves—Nature usually does this—but rather to give them skill in their use, to train them to give heed to the impressions which are made in the mind through the senses—to cultivate, in short, the *conceptive* rather than the *perceptive* faculties, though of course this must be done through the *perceptive* faculties.

Conception—Imagination.—By the investigation of a few different substances containing any given property, the mind forms a conception of this property aside from, or independent of, any one of the objects considered. That is to say, the idea of its qualities, apart from the subject itself, becomes now a distinct object of contemplation. This mental process is what we mean by conception. The province of this faculty is to store the mind with ideas formed from its previous perceptions (impressions through the senses), through the aid of close attention and memory. These generalizations of our perceptions have an elevating influence on the mind, and it is often disposed not to stop with the

simple conceptions thus derived, but to go further and extend these into creations more or less original. This faculty is called imagination, though it is in reality only a higher developed form of conception. It is especially characteristic of the latter part of the objective period of the child's life, and it may be utilized by the skillful teacher in making the most commonplace subjects intensely interesting. To the average child of this age, the stick with a rag tied around it becomes a veritable living baby, a paragon of all the virtues, graces, etc., that usually belong to this most interesting object of juvenile contemplation ; while a crooked stick with a string for a bridle becomes a genuine prancing war-horse, of extraordinary speed and valor.

It is the predominance of this faculty that renders the objective age so well adapted to the imparting of moral and religious impressions ; the conceptions derived from the perceptions are now so easily extended to the realms of the unseen spiritual world that they become ever after so real that it is next to impossible to eradicate them entirely from the soul. "Give me the training of your children until they are seven years old," said a distinguished ecclesiast, "and I will forever protect the great majority of them against the seductive teachings of the materialist," and this statement doubtless contains a large degree of truth. Object lessons may, by only a slight extension of the conceptions, be so directed as to impress indelibly the deepest spiritual truths.

Association.—The faculty of association, too, is now brought into play, and with the conceptions of new properties, new forms, and new ideas of various kinds, certain arbitrary sounds and signs are associated. The *name* of the property, idea, or thing, whether spoken or written, becomes associated with the idea itself, and inseparable from it thereafter. The object lesson, therefore, should always

be made a language lesson, both in the way of extending the pupils' vocabulary in a natural way, and for the purpose of cultivating accuracy of expression. As Mr. Tate so aptly expresses it : " This habit of clothing our conceptions in language is the highest exercise of the representative faculty. It completely *objectifies* our ideas, and gives, as it were, a two-fold existence to the products of thought. Words and ideas exercise a reciprocal influence on each other : the visible representation suggests its corresponding idea, and the idea suggests the corresponding representation."

The whole matter is thus admirably stated in a work styled "The Cultivation of the Senses,"*—a name which is, however, somewhat misleading, since, as before stated, it is not so much the senses themselves that are cultivated by these lessons as the faculties they supply with aliment.

Classification of Object Lessons.—"Object lessons for infant schools may be conveniently grouped into four classes, corresponding to the ages of the children : 1st, Lessons in which the main purpose is to lead children to perceive the parts and the more obvious qualities of objects. 2d, Lessons calling attention to the less obvious qualities and uses of objects. 3d, Lessons involving an easy classification of things. 4th, Lessons directing attention to the adaptation of means to ends, and thereby exercising the reason. The same subject may be treated in all these ways, the teacher remembering that the senses should be chiefly exercised first, theceptive faculty next, and the reasoning faculty last of all.

"As far as possible, even in the primary school, lessons relating to connected and kindred subjects should be given in a series, so that the relations between things may be

* "The Cultivation of the Senses." Eldredge and Brother, Philadelphia.

perceived, and in order that new knowledge may be linked on to the old. ‘Alike in its order and its methods,’ says Herbert Spencer, ‘education must conform to the natural process of mental evolution ; there is a certain sequence in which the faculties spontaneously develop, and a certain kind of knowledge that each requires during its development; and it is for us to ascertain this sequence and supply this knowledge.’

Apparatus.—“The teacher should in all cases take care to provide himself beforehand with the apparatus necessary for his lesson, the apparatus and the experiments made with it being, if properly used, in themselves the lesson, and the teacher merely a demonstrator, whose function is not so much to communicate knowledge by word of mouth as to direct and test the child’s powers of observation and reasoning. Careful attention should be paid to the order in which the experiments are performed, and the specimens displayed.

“If possible, the teacher should have the actual object on which the lesson is given placed before the children; and a specimen of it should be given to each child. For instance, if the lesson were on a daisy, each child should have a daisy, and should examine it for himself, under the teacher’s direction, first taking off one part and then another, and laying each part carefully aside. An enthusiastic teacher will always be on the lookout for specimens for the illustration of his lessons, and will take advantage of times and opportunities to secure them. I recently heard a lesson on the bee, and found that the teacher had the forethought to secure a complete hive of dead bees, from which he was enabled to furnish every child a handful at the beginning of the lesson.

“If the actual object can not be had, then a picture of it should be introduced; but it should not be forgotten that a

picture is only an imperfect symbol of the object which it represents. It is, of course, a more perfect symbol than a word, because it is not arbitrary, and bears some resemblance to the real thing; but it is addressed to only a single sense, and is very liable to mislead even that. It can give no idea, except by way of suggestion from the association of ideas, of resistance, weight, texture, etc. Pictures that are not on the same scale as the objects represented should contain some familiar object to furnish a standard for relative measurement. A picture of a mouse should contain a cat. A picture of an elephant should contain a man. This rule should be invariably observed in lessons on Natural History.

Use of Blackboard.—“As an auxiliary to all other modes of illustration, the blackboard should be freely used. Every teacher should be able to draw rapidly and effectively before his class. An illustration may often be drawn on the blackboard when no other form of illustration is available. Children love to see a drawing grow under their eyes. Moreover, a blackboard drawing enables the teacher to present a complex object little by little, and to exaggerate the scale of important parts of an object that are too small to be clearly seen in a model or complete drawing. In lessons on subjects in which form plays an important part, as in botany, it is well to get the children to copy for themselves the forms set before them.

New Words.—“In his desire to get children to acquire real knowledge, the teacher should not forget the importance of their acquiring verbal knowledge commensurate with it. Words are indispensable as the symbols of knowledge, and should be taught as occasion requires, care being taken that the knowledge of the thing or quality takes precedence of the knowledge of the word designating it. There are some qualities that are common to large classes

of objects. It is not necessary to introduce these into every lesson on objects possessing them. Once well learned, the teacher may assume the knowledge of them, and direct his attention more particularly to distinctive qualities. All the new words should be written on the blackboard, and an abundance of examples should be given and required in which the words occur.

"Teachers can not be too careful in performing experiments, in handling and arranging specimens, and in drawing and writing on the blackboard, to set an example of neatness, order, and symmetrical arrangement. Clumsy experiments, disorderly heaps of specimens, bad drawings, illegible writing, and confused blackboard work, have necessarily a bad moral and intellectual effect on the minds of the children before whose eyes they are constantly presented."

ANALYSIS OF CHAPTER V.

The "objective period" the time for object lessons. The child's perceptive and concepitive faculties are active; he is competent to form general ideas, and express them in language.

"Object Lessons" often placed in courses of study because they are fashionable. Attempts to give them by those who have never learned how. The result spiritless and indifferent at best, often ridiculous and subversive of discipline. Common misconception that object lessons consist in description of objects by the teacher.

On the contrary, the real aim is to lead the pupils, first: to observe; second, to express their observations.

The object of such lessons is not to cultivate the senses, but the capability of the mind to use them—to train the concepitive faculties through the perceptive ones.

The process and the province of conception.

Imagination ready and vivid in children. This fact may be utilized in producing profound moral and religious impressions on the child's mind.

The faculty of association comes into play in teaching the child the spoken and written word that belongs to each new idea.

The object lesson should always be a language lesson.

The reciprocal influence of words and ideas upon each other.

OBJECT LESSONS FOR INFANT SCHOOLS : Divided into four classes : 1st, perceiving the more obvious qualities ; 2d, the less obvious ; 3d, classification ; 4th, adaptation of means to ends.

Connected subjects should be given in a series.

Apparatus should be prepared and experiments tried beforehand.

Have the actual object, if possible.

Precautions to be observed when pictures are used.

Use of the blackboard.

Language lessons.

Neatness and order.

SUPPLEMENTARY QUESTIONS.

Did you ever give object lessons to your pupils ? If so, what were some of the principal difficulties you encountered ?

Did your pupils seem to enjoy the exercise, and did it seem to you, upon the whole, that it was profitable ?

How frequently do you think such lessons should be given, and how long should they be ?

Through how many years of the pupil's school-life should pure object lessons be continued ?

What distinction would you draw between object lessons and object teaching ?

When a child sees an object for the first time, what kind of a faculty is he exercising—perceptive or conceptive ?

When you ask him such a question as " How many legs has a fly ?"—he having no specimen before him—what kind of faculty is brought into play ?

Is it possible for us to think without language ?

CHAPTER VI.

OBJECT LESSONS CONTINUED AND AMPLIFIED.

IN giving object lessons, the subjects first selected should be of the simpler kinds—those whose parts or properties are most obvious—but the lessons should at the same time be made difficult enough to impress upon the minds of the pupils the fact that they are learning something, or at least turning their previous knowledge to some account. To spend the whole time of an exercise in impressing upon the class the astounding fact that *the table has four legs*, does not tend to cultivate their respect for the system. It is well, in the beginning, to introduce such lessons as will afford the little ones some opportunity to gratify their love of activity, as was illustrated in the earlier kindergarten gifts. In the second stage common objects should be introduced—bearing in mind the necessity of directing the attention of the pupils to such facts as may have escaped their observation.

The most interesting classes of subjects are those connected with natural history. Here there is so much that even children of an older growth usually fail to see that the lesson, when skillfully conducted, becomes intensely interesting. It is wonderful how much the sharp eyes of the little tots may be led to discover in such an object as a feather, a bee, a fly, etc., etc.

The more prominent parts of the human body may also be made of interest, and the exercises on these may be

turned to the most practical account in connection with such subjects as temperance physiology.

We now pass to a more practical illustration of the conducting of this most important school-room exercise.

**A SYSTEMATIC SERIES OF OBJECT LESSONS ON THE HEAD
AND ITS MORE OBVIOUS PARTS OR ORGANS.**

Points to be developed :

- 1st.—The position of the head.
- 2d.—Its general shape.
- 3d.—The parts on the right-hand side.
- 4th.—The parts on the left-hand side.
- 5th.—The fact that the two sides are just alike.
- 6th.—The covering of the head, and its use, care, etc.
- 7th.—The eyes—their parts, position, care, use, etc.
- 8th.—The nose—its position, care, use, etc.
- 9th.—The ears—their position, shape, care, use, etc.
- 10th.—The mouth—its position, use, abuse, etc.
- 11th.—The fact that all the organs of the head are placed in the best possible position for the purpose for which they are designed; the lesson which this teaches, etc.

First Lesson.—The teacher, laying her hand on Lucy's head, asks the class : "What part of Lucy is this, scholars ?"

The answer comes promptly, "It's her head." If they are disposed at first to answer in too loud or too boisterous tone, it must be checked, and the answer must be given again in the proper tone. There must be proper freedom in connection with all such exercises, or they will lose much of their spirit and sparkle, and consequently much of the purpose for which they are designed will be lost ; but at the same time, the familiarity of the exercises must not under any circumstances be permitted to degenerate into rudeness or insolence. The interest and enthusiasm must

be natural if permitted to transgress the ordinary bounds of school-room decorum.

The tone of assurance in which some will be disposed to answer the first question may indicate that they regard the question an insult to their intelligence, and reading between the lines, you may possibly trace such answers in the tones as "Do you take us for babies?" or, possibly, such choice bits of play-ground slang as "What do you take us for?" etc., etc. If so, it will be well before going further to convince some of those who have manifested the most assurance that possibly their knowledge is not quite so extensive as they think.

To this end, call up one of the most noisy and ask him to point out to the class the limits of Lucy's head. It will be found that there is a wide difference of opinion among the members of the class—some supposing that it is only the part above the ears and not including the face; others that it includes the ears but not the chin; still others that it includes all above the shoulders; while a few may be disposed to exclude the neck.

The merit of this little discussion will be the fact that it will convince the members of the class that they need to be a little more thoughtful in regard to common things, and that they may have wrong ideas about the things with which they think they are most familiar. This point being fairly established, the answers to subsequent questions will probably be couched in more respectful tones. This is enough for the first lesson.

Second Lesson.—Pass in the next exercise to the second point to be developed—the head's general shape—and ask questions something like the following: "James, what is the shape of a boy's or a girl's head?"

James looks at the heads of his classmates for a few moments, and then answers, but with less assurance than

in the first lesson : "The boys' and girls' heads are round."

Teacher, holding up a ring : "What is the shape of this ring?" All agree that it is round, and in answer to the question whether the heads of his classmates are shaped like rings, Frank explains that he means that "They're round the other way." Then Fred comes to his relief with the suggestion that "They're round and long."

The teacher, picking up the pointer, answers: "Well, this pointer is 'round and long.' Are the heads of the boys and girls shaped like the pointer ? "

Lizzie has grown excited and makes the comprehensive assertion that "It's round all over ! "

The teacher, taking a confiscated marble from the desk, says : "This marble seems to be 'round all over ; ' are the heads of the scholars shaped just like the marble ? " A few think so at first, but after a little discussion all agree that they are not shaped *just* like a marble.

The teacher then asks each member of the class to name some thing that is "round," telling the rest to watch sharply to see whether any of the round things that are named are shaped like the head of a boy or girl. Among the things mentioned will probably be some that are not round in any sense, and such answers must not be permitted to pass unchallenged.

Finally, after a large number of round things have been mentioned and in turn rejected as not being shaped like a child's head, Carrie mentions an *egg*, whereupon several agree at once that she has found it. But it is not until her older brother, Carl, comes to her assistance with the explanation that the big end of the egg is the forehead, and the little end the chin, that all are led to see the resemblance.

The teacher then congratulates the little folks on having discovered the right answer, and then tells them to look

into the faces of all their companions and notice the fact that though no two of them are exactly the same shape, they are all egg-shaped. She then explains that any thing "round" in this way is said to be *oval* (from *ovum*, an egg).

The teacher writes this new word on the board and asks the pupils to mention other things that are of an oval shape. This will be amply sufficient for the second lesson.

Third Lesson.—The question of shape having been satisfactorily settled, we pass in the next exercise to the third topic—the organs or parts on the right-hand side of the head, beginning at the top.

The teacher now asks questions somewhat as follows: "Lizzie, what is there at the top of the head on the right-hand side?" Lizzie answers somewhat cautiously: "I think the forehead is at the top of the right-hand side of the head." A number of hands go up to dispute this, and finally Lizzie concedes that only one half of the forehead is on the right-hand side, though she at first had one or two earnest supporters who stoutly affirmed that there are *two* foreheads—one on each side. After some discussion and measurements it is next decided that the eyebrow comes next, then the eyelid, the eye, and the ear. But the nose gives rise to a somewhat heated discussion, several being confident that we have two noses. The teacher, acting as umpire, decides that we have but one nose though we have two *nostrils*—one on either side. (This is another new word in their vocabulary, and the teacher writes it on the board.)

It is then decided in order, with no very great amount of discussion—for the little folks are already beginning to have a clearer understanding of matters—that we have also one cheek, one half of an upper lip, one half of a lower lip, one half of a mouth, and one half of a chin on the right-hand side. Henry is now called on to state in a connected way

the various organs of the right-hand side of the head, which he does as follows: "On the right-hand side of the head there is one half of the forehead, one eyebrow, one eyelid, one eye, one ear, one nostril, one cheek, one half of the upper lip, one half of the lower lip, one half of the mouth, and one half of the chin." This closes the third topic and the third lesson.

Fourth Lesson.—The teacher, in the fourth exercise, tells the scholars to look very carefully for one minute at the left-hand side of each other's heads, and then be prepared to tell what parts they contain. At the end of the allotted time a dozen eager hands go up, and finally Jennie is accorded the distinguished honor of being allowed to state that the left-hand side of the head contains "one half of the forehead, one eyebrow, one eyelid, one eye, one ear, one nostril, one cheek, one half of the upper lip, one half of the lower lip, one half of the mouth, and one half of the chin."

The teacher then asks what the class have discovered about the two sides of the head; but the answers at first indicate that the little folks do not catch her idea. So she again asks Henry to state what the right-hand side contains, and then asks Phoebe to repeat what the left-hand side contains, and then again asks the class what they can say about the *two* sides. This time half of the class, or more, see the point to the question, and answer with one voice : "*The two sides of the head are just alike.*"

Additional Lessons may follow on such topics as the covering of the head, the hair, with some practical thoughts regarding its proper care; the eyes, their prominent parts and use, with the development of the fact that they are placed in the best possible position, and are especially protected ; the nose, and its use and care : why it is placed just above the mouth; the ears and their care and use: why they are

shaped as they are ; the mouth and its use and abuse, etc., etc.

In all such exercises as the above the teacher may easily direct the thoughts of the little ones in such a way as to lead them to discover the fact that their Creator has exercised the utmost kindness in providing these organs, and also locating them in the very best place possible for the purposes for which they were designed.

If the members of the class have learned to write or print with some degree of facility, they may now, after having first been allowed to tell orally what they have discovered about the head, be permitted to write it out on their slates. They will now have something worth the writing, and it will afford them unusual pleasure to be permitted to write it.

Object lessons as distinct exercises should be continued through only the first two or three years of the pupil's school life ; but *object teaching* should be continued, in connection with various departments of study, throughout the entire common-school course.

ANALYSIS OF CHAPTER VI.

In giving object lessons, the subjects first chosen should be simple, but not too simple.

What classes of objects should be used in the first and in the second stage ?

The best objects are those connected with natural history.

Why the study of the more prominent parts of the human body is specially desirable.

SYSTEMATIC SERIES OF OBJECT LESSONS ON THE HEAD :

Table of eleven points to be brought out.

Detailed description of first lesson—on the limit and position of the head.

How to check boisterousness and presumption.

Second lesson : the shape of the head. The word *oval*.

Third lesson: the organs on the right side of the head.

Fourth lesson: the organs on the left side of the head. Comparison of the two sides.

SUGGESTIONS AS TO THE ADDITIONAL LESSONS :

How the little ones may be shown the goodness of the Creator.

Writing out their discoveries.

How long a period object lessons should be continued.

How long object *teaching* should be continued.

SUPPLEMENTARY QUESTIONS.

Is it true, as implied in the opening sentence of this chapter, that children are apt to be of a utilitarian turn of mind with reference to their studies ? If so, should the teacher encourage or discourage it ? Why ?

Are we most apt to overestimate or underestimate the knowledge and intelligence of children when they first enter school ?

What do you think is apt to be the case with reference to our estimate of the understanding of pupils in the more advanced grades ?

Would you consider such an object as a stone, a poker, or a piece of lead as being well adapted as an early object lesson ? Why, or why not ?

In giving a series of object lessons on some one thing, do you think it best first to give lessons on the thing as a whole, and then pass to the consideration of the various parts ; or to begin with the investigation of the parts, and consider the thing as a whole last ? Why ?

If you were to give an object lesson on *a brick*, what points would you aim to lead your pupils to mention or discover ?

Suppose that you were going to study the fly, what points would you aim to develop in the first lesson ?

How many lessons do you think might be profitably devoted to such a subject ?

Make an outline of them.

CHAPTER VII.

RECAPITULATION AND ELUCIDATION OF THE PERCEPTIVE AND THE CONCEPTIVE FACULTIES, WITH A BRIEF GENERAL STATEMENT OF OUR MENTAL PHENOMENA.

IT seems advisable, before passing to the consideration of the Knowing and Reasoning Faculties, with the studies and methods best calculated to develop them, first to review the ground already traversed in part, and to elucidate several points that have thus far been merely touched upon. * * *

The mind has various different states and modes of action. These states and modes are called **Faculties**.

Our mental phenomena may be divided into three classes :

First. INTELLECT, pure and simple, comprising those faculties by which we perceive, remember, compare, conceive, imagine, know, and reason.

Second. EMOTIONS, comprising both the passive ones of feeling or experiencing pleasure or pain; and the active ones which affect our conduct toward others, such as love, envy, pity, blame, hatred, anger, etc.

Third. The WILL, the faculty by which we exercise self-control, and which, therefore, constitutes man a free moral agent, and which is doubtless more especially the faculty by virtue of which he was said to be created in the image of God.

The Intellectual Faculties.—Our four successive stages of mental evolution may be thus expressed : (1) I

perceive a thing ; (2) I receive an idealized impression of the properties, qualities, characteristics, etc., of a class of things apart from any one particular thing of its class ; (3) I know or understand a principle or proposition ; (4) I can prove or demonstrate the proposition.

The annexed tabulated statement of the Intellectual Faculties is adapted from Tate's "Philosophy of Education." It is not expected that the teacher shall memorize it before studying the explanations that follow ; but it is intended rather as an index in keeping the groups of faculties more clearly in mind. It should be checked off in the mind, so to speak, as we advance in its explanation.

CLASSIFICATION OF THE INTELLECTUAL FACULTIES.

STAGES OF DEVELOPMENT.	CHARACTERISTIC CLASS OF FACULTIES.	GENERAL CHARACTER OF EACH CLASS.	INDIVIDUAL FACULTIES IN EACH CLASS.
1st stage.	The Perceptive faculties.	Intuitive.	Sensation. Perception. Attention. Observation. Retention. Primitive judgment or intuitive perception.
2d stage.	The Conceptive or Representative faculties.	Representative.	Memory. Imitation. Conception. Imagination. Association. Recollection. Representation as exhibited in language. Primitive judgment associated with conception.
3d stage.	The Knowing faculties, or the faculties of the Understanding.	Cognitive.	Abstraction. Classification. Generalization. Explicit comparison, etc.
4th stage.	The Reasoning faculties.	Cogitative.	Reason as exercised in Induction, Deduction, etc.

The faculties involved or called into operation in the first stage are called the PERCEPTIVE FACULTIES; those in the second, the CONCEPTIVE or REPRESENTATIVE FACULTIES; those in the third, the KNOWING or COGNITIVE FACULTIES; those in the fourth, the REASONING or COGITIVE FACULTIES.

The first two of these have already been considered, more or less, but a restatement of their peculiar provinces, at this point, seems advisable before passing to the consideration of the latter two.

The Perceptive Faculties collectively are those which have to do with the reception of impressions from the external world through the medium of the senses. This is both a passive and an active stage. If the mind were, as has been stated by some, a mere sheet of white paper on which the impressions from without fall as do the light rays on the chemically prepared plate in photographing, it would be wholly passive, and there the evolution of mind would have to stop, since there would be nothing back of these impressions to take notice of them. But as the primitive soul stands back of all these impressions, ready to receive them and assimilate them, it is active as well as passive in its operations; and since it is the primitive judgments or intuitions that take up and utilize these impressions, the general character of the perceptive faculties is said to be *Intuitive*.

The special faculties involved in this group are, as shown in the table, Sensation, Perception, Attention, Observation, Retention, and Primitive Judgment, or Intuitive Perception. We shall now consider them in detail.

We perceive a rose by the sense of sight, of smell, or of touch, or by any two of them, or all of them combined, and the perception gives us the sensation of pleasure.

We perceive (*i. e.*, become aware of the presence of) a

bramble by the sense of touch, perhaps, and the *perception* causes in us the sensation of pain.

It is impossible for us to conceive of any mental progress, even in the mind's perceptive stage, without some ATTENTION on its part to the impressions made; hence attention, though of a feeble nature, must of necessity accompany each perception.

Observation is of two different kinds, or it assumes two different forms. First, the half-unconscious and partially involuntary act we call by that name,—as the observation of an infant, or of an idle spectator. In this sense it is clearly a perceptive faculty. In the other sense, observation may be in the highest sense a voluntary act, performed in accordance with some design or definite purpose, as the observation of an Indian in following a trail, the observation of a physician in diagnosing a disease, the observation of a scientist in studying a specimen for classification, etc. In this latter sense, observation becomes a highly complex mental exercise, and is properly classified with the reasoning rather than the perceptive faculties.

Retention is a primitive or rudimentary form of memory—the power by which the mind, with no apparent effort or intention of its own, retains the impressions it has received through the senses. Its operations may be clearly traced in very young infants. A babe but a few weeks old recognizes its mother's face and even any dress that she has commonly worn. It is evident that without this faculty there could be no mental progress, since in that case the sensations would fade out as fast as produced, and no material could be stored up for the use of theceptive faculties. It is a rudimentary form of memory.

Intuitions.—The subject of Primitive Judgments, or, as they are more commonly and better called, Intuitions, is one of great importance, as these are the basis of all our

knowledge. As before remarked, perception has its passive and its active side. The passive side is the impression made on the brain through the eye, the ear, or some other organ of sense, and transmitted in some mysterious manner to the mind. The active side is the *intuition*, the instant, irresistible conviction—"the impression I have just received came from some thing, some real existence, which is not myself." There is thus a double line of communication between the mind and the external world. The ray of light, for instance, that brings the image of the external object into the mind, and the intuition which goes out from the mind to that object, and says, "There *is* a thing there, and that thing is not I."

All our knowledge and all our reasoning start from intuitions, which afford us an unquestionable and immovable basis. The demonstrative reasoning of geometry is all founded on certain axiomatic truths, intuitively known; as, "Things that are equal to the same thing are equal to each other"; "The whole is greater than any of its parts"; "The whole is equal to the sum of all its parts," etc.

Intuitions are thus universal and invariable, the same in the savage and in the civilized man, in the infant and in the sage; they are necessary and absolute, for we instinctively act upon them, whatever may be our theories in regard to them. They are in harmony with the realities of existence, for the same God who made nature made also the mind of man.

While we speak of intuitions as the basis of knowledge, it must not be understood that they are the only *source* of knowledge. The intuitive perception does not even begin to act until some object is presented to the mind through the senses. The sources of knowledge are, in fact, three: Sensation, Reflection, and Intuitive or Primitive Judgment.

The Conceptive Faculties.—The second stage of intel-

lectual development may be called the Conceptive Period. In this epoch of the mind's evolution a great advance is made over the first, or Perceptive Period. During the former period the mind was largely engaged in receiving impressions of the external world and assimilating them. It has now advanced so far that it has forged these crude impressions into more general ideas. The form, color, size, and other properties of things have now taken form in the child's mind, aside from the individual things that produced the impressions, and he now sees with his mind's eye idealized forms of men and birds and trees and other familiar objects, entirely independent of any particular individual in any of these classes of objects.

An illustration may be drawn from the recently invented process of composite photographing. When the light rays from a single individual are fixed by the photographing process on the plate, we have the exact picture of that person or thing ; but when the images of two are impressed upon the same plate successively, we have an image condensing into one the medium or the average of the features of both, and when a score or more of those of various shades of complexion and casts of features are combined in one we have what is known as a "composite photograph." It does not resemble any one particular individual of the group, but represents in one the combined effect of all the lineaments, regardless of race, color, etc. It is neither English nor German, nor Irish nor Scandinavian ; it may not be Ethiopian or Caucasian, male or female ; it is the *idealized genus homo*.

In some such way as this the mind forms a composite picture of all its individual impressions, and sees, aside from any one member of a class, its idealized or general form.

As the mind is now capable of representing all the individuals of the same general kind by this one idealized form

it has pictured, the general character of this group of faculties is said to be *representative*.

Memory.—The first special faculty to be considered in this group is **MEMORY**. We exercise this power when we recall ideas with a full and distinct consciousness of the connection between the original idea and its recollection. “Memory is a repetition of a mental operation accompanied by a consciousness of its prior existence. When we remember any thing, we reproduce the mental operation connected with the actual perception of it,” as the needle of a phonograph travels back over the impressions it formerly made in the wax, and communicates again to the vibrating diaphragm the same undulations it originally received from the voice of the speaker. When memory has reached this stage of development, voluntary attention becomes an important factor. We look long and earnestly on an object we desire to remember; we impress upon our minds not, indeed, a complete and accurate image of it, but an idealized reproduction. These ideas, stored up in the mind, are probably at first recalled by accident, but the mind gradually acquires the power of recalling them at will, which constitutes the faculty of Recollection.

The faculty of imitation is so prominent at this period that the most superficial observer must have noticed it. The pupil now delights to draw pictures or representations of the idealized objects he carries in his mind, and the judicious teacher will utilize this principle in his system of instruction. It is mainly dependent on *observation* and *memory*.

Conception is the faculty which gives its name to the entire group. By it we form general ideas. Its office is to fill the mind with ideas which can be expressed by common nouns—ideas which exist only in the mind, and which render it more self-reliant and capable of thoughts which are more than a succession of sensations.

"**Imagination** is a higher kind of conception; the latter is reproductive, the former productive, or creative. Imagination modifies and combines our recollections and conceptions in such a way as to make new ideal existences."

The faculty of **association** is the one that enables us to arrange our ideas in order and to represent them by systems of signs and symbols. We associate certain sounds, for example, with certain ideas, and by this means we attain *spoken language*. We associate, again, these symbolical sounds with written characters which represent them, and we have *written language*. In spoken and written language we have the great means whereby knowledge is stored up and communicated.

By **MEMORY** we store up knowledge, by **RECOLLECTION** we recall it, and by means of language we give it **REPRESENTATION** and share it with others.

A Priori Knowledge.—In all the operations of the mind in these earlier stages the faculty of **PRIMITIVE JUDGMENT** or **INTUITION** still plays a prominent part. It stands back of these as a sort of umpire to decide all doubtful questions, and its decisions are instinctively followed as being infallible. This primitive knowledge, this knowledge which was born with us, this knowledge which is not the result or outgrowth of our own experience, is what is known as **A PRIORI**. It is distinguished from the **A POSTERIORI**, or knowledge which is the result of our experience. As these terms are often used in all works which discuss the operation of the mind and its evolution through educational agencies, the teacher will do well to remember their significance.

It should be stated here that there are those who attempt to get along without assuming the *a priori*; these are they who refer everything to experience. They are, for the most

part, those who are unwilling to acknowledge the agency of a Creator. It seems impossible to escape the conviction through any rational process of reasoning, that if there is in the mind anything beyond its own experience, it must be due to some power beyond itself. The author believes that he is stating the case with the utmost fairness when he says that, unwilling to accept such conclusions, it becomes necessary for these philosophers to dispute the *facts* in the face of the most abundant evidence.

For instance, the mind receives an impression of some external object through the senses, and instantly forms an intelligent perception of the properties of this object, without any intelligence there to make note of the impression ! This is what the denial of the *a priori* must inevitably lead us to. For if, as some have argued, our so-called *a priori* knowledge or intelligence is only inherited experience, it only shifts the difficulty back a step in reasoning. It involves the question as to how, then, our original ancestor gained the intelligence which he transmitted.

ANALYSIS OF CHAPTER VII.

It seems best, before going farther, to treat more fully of the Perceptive faculties.

What we mean by faculties.

Our faculties divided into three groups—Intellect, Emotions, Will.

THE INTELLECTUAL FACULTIES :

Four stages of mental evolution—Perceiving, Conceiving, Knowing, Demonstrating.

Tabulated statement of the Intellectual Faculties.

The four groups of faculties.

THE PERCEPTIVE FACULTIES :

Definition. The passive and the active side of perception. Intuition. The special faculties of the perceptive group : Sensation ; Perception ; Attention ; Observation—two kinds ; Retention, the basis of progress ; Intuition.

INTUITIONS :

The active side of perception. The proof of the existence of the external world.

Axioms—intuitively known—the basis of geometry.

Intuitions are universal, invariable, absolute.

The three sources of knowledge.

The Second Stage—Conceptive Period.

Impressions have now been generalized into conceptions.

The process of forming a conception illustrated by composite photography.

Why this group of faculties is called *representative*.

Memory—description of its processes illustrated by the phonograph.

Voluntary attention—its importance.

Recollection.

Conception—origin of common nouns.

Imagination—the higher form of conception.

Association—spoken and written language.

How we store up, recall, and express knowledge.

Imitation is prominent and should be utilized.

Intuition stands back of all these as the umpire.

A priori and *a posteriori* knowledge.

The school of philosophers who deny the existence of *a priori* knowledge. The probable reason of this denial.

Refutation of the theory that *a priori* knowledge is inherited experience.

SUPPLEMENTARY QUESTIONS.

What do you understand the words *active* and *passive* to mean as used in the second paragraph of this chapter? Give illustrations.

Where is it said that "Man was created in the image of God," and what is said about it?

Is it possible to conceive of perception without assuming that there is intelligence already in the soul? Why, or why not?

Can it be shown to a child that its own mind bears in it the evidence of a Creator? If so, how?

What do you understand *instinct* to be?

If a child were born without any of the senses, would it be possible for it to make any intellectual progress?

What can you say of Laura Bridgman?

Does it seem to you that the sense by which we judge of the rough

ness or smoothness of an object, and that by which we judge of the weight or pressure of things are the same sense?

What is the sense by which we become aware of pain?

Of what use is this sense to us?

Why do the brutes have the senses more highly developed than men?

Fish found in subterranean lakes have no eyes. Would you infer from this that light forms the eye and gives the sense of light? If not, how do you account for the fact?

• Does a brute possess the faculty of perception? How can you show this?

Does he possess the power of conception? Prove your statement.

Do these facts prove that he possesses *a priori* intelligence? Why?

Does he possess memory? Have we any evidence that he possesses recollection?

Has he the faculty of imitation? Prove your statement.

Have we any evidence that a brute possesses the faculty of imagination?

To what extent does it possess the faculty of association?

Why is it impossible for animals to advance intellectually from generation to generation as men do?

Why is a deaf person usually dumb?

Does he lack any *faculty*?

Explain your statement.

Explain how he learns to read and write. What faculty does he employ in this?

Give an illustration of the subjective. Of the objective.

Can the subjective exist without the objective? Prove your statement.

Can the objective exist without the subjective? Prove your statement.

CHAPTER VIII.

IMPORTANCE OF CERTAIN OF THE CONCEPTIVE FACULTIES, WITH METHODS OF CULTIVATING AND UTILIZING THEM.

Memory and Recollection.—The faculties of **MEMORY** and **RECOLLECTION** are so closely related that their cultivation may be best considered together. These, again, are so much dependent on **ATTENTION** that it has been asserted if we take care to engage the attention, the memory will take care of itself. It is well, however, to bear in mind the difference between *memory* and *recollection*.

The former is a receptive or passive faculty but little under the control of the will. It depends so largely upon the physical impressibility of the brain that it has been declared by some authorities to be even beyond the reach of education. Though it is more a passive than an active faculty, the impressions may, undoubtedly, be more deeply furrowed in the tablet of the brain by successive repetitions of the sight, or sound, or smell, or taste, or touch that produces them, or the image may be more deeply graven by using two or more of the senses in impressing it, or by holding the object of contemplation for a longer period of time before the mind. It will be seen that this is, in reality, not cultivating the faculty at all—it is simply impressing a given fact upon the brain. It will doubtless be just as difficult to impress the next one as though the first had not been so deeply furrowed by the successive strokes of the senses' hammer and chisel. The trait of mind, then, which

needs cultivating in order to secure memory, is the power of holding the mind down to the contemplation of an object or a fact until the impression is so deeply furrowed in the tablet of the brain that the next impression will not obliterate it. Whatever, therefore, secures close attention must tend to cultivate the memory. Now, the attention is held to an object or theme by various devices : first of all, by making it attractive in some such ways as were illustrated in the chapter on the Kindergarten and Object Lessons. But as activity is a law of child-nature, it is difficult to hold the attention, even by these pleasing devices, for any very considerable length of time ; and as a pleasant association in connection with the impression is also an important factor in its retention, the minds of the children should not be held down to the contemplation of the object long enough to *weary* them. The next day, and the day following, the impression may be repeated, until by repetition the facts or words or principles, or whatever else may be brought under observation, are indelibly impressed. These three things, then, are important factors in cultivating the memory—*i. e.*, in fixing perceptions in the mind—close attention, pleasant association, and frequent repetition. But pleasant association is chiefly a means of fostering attention, and repetition is only bringing the object under observation or contemplation again and again, and thus bringing the attention to bear on it for a longer time than can be done during one exercise, so it will be seen that all the real devices which either the teacher or the pupil brings into play for the purpose of cultivating the verbal memory are ultimately reducible to *attention*. But back of all this is the physical impressibility of the brain, which differs very widely in different individuals ; and, with an equal amount of attention on the part of two different pupils, the results may be found to be very unequal.

Value of the Memory.—Much has been written both for and against the value of the memory, in its ordinary sense, as an educational factor. In the old-fashioned systems of education, in which the principal occupation of the schools was the study of Latin, it was the one faculty more than any other that was found serviceable ; and that it was exalted by the old-time pedagogues beyond its merits there can be little doubt. But with the introduction of other branches of study, and the consequent neglect of the dead languages in the lower-grade schools, there came a reaction ; and it has been the fashion among many of the advocates of the new education to hold verbal memory in contempt.

Says Mr. Tate : “ We hold that an unusual manifestation of this power in childhood tends to counteract the healthful development of the other intellectual powers. The boy who can readily commit the language of others to memory is not compelled to exercise his judgment upon the ideas which are intended to be conveyed to his mind ; besides, through want of discrimination on the part of the master, boys with a ready memory almost invariably rise to the highest places in the school, and thus no adequate inducement can be held out to them to cultivate any other faculty ; they consequently seek distinction by the path which is most accessible to them. . . . That boy whose memory is cultivated at the expense of his judgment can not become a really useful member of society ; his vanity is inflated by unmerited applause, and he is unconsciously led to indulge in dreams of future greatness which will never be realized. On the other hand, the boy with a slow, unostentatious, recollective memory is slighted and discouraged. A teacher should never compliment a boy for having a good natural memory ; boys of this kind soon enough gain distinction for themselves, for a good memory is a truly remarkable

sort of thing, which meets with patronage in all companies and from all classes of society ; and it is further important to observe that there is no gift of which a boy more readily becomes unduly and obtrusively vain than that of memory."

Again, the same author says : "Memory [*Recollection?*], to a great man, is an humble, confidential servant—a sort of keeper of the stores—who is expected to guard and preserve carefully what is committed to his charge, and at the same time be always ready to bring forward any thing at the moment it is wanted."

Very good, Mr. Tate, but how is this same "confidential servant" and "keeper of the stores" "to bring forward any thing the moment it is wanted" unless that same thing shall have been first placed in store ? This would, indeed, be a most convenient servant for either a "great man" or a small one to have in his household—one that would go far toward solving the problem of living on a pedagogue's salary. It is difficult to see how this "keeper of the stores" can bring up potatoes, or flour, or bacon, or what-not, from your intellectual cellar unless he has first stored them there. If they are not there, they can not be "brought forward."

No doubt the power of recollection, the power of recalling at will the essential features of our impressions, is a higher faculty than mere verbal memory ; but the author believes that a good verbal memory will be found greatly to assist this faculty rather than to hinder it.

Undoubtedly, when we look on a landscape we may see many minor details which may soon fade from the memory and leave us still a very good general conception of it ; but these same minor details greatly aided us in forming our conception of the view, and the more of them that are retained, other things being equal, the more vivid will be our conception of it.

Ought Some Things to be Forgotten ?—In Kiddle

and Schem's Cyclopædia of Education is the following : " Perhaps one of the questions which deserve careful consideration in education is what ought to be forgotten. The human mind is limited in its range, and can not reproduce every thing. Ought it to put into its store-house anything that it can not hope to reproduce ? We think that it ought. Where the aim is to produce in the pupil a clear idea or notion, many particulars must be adduced which, studied attentively for a short time, will render the notion clear and distinct ; but it is not necessary that the mind should retain all these particulars. This is the case, for instance, in geography. In order to form a correct notion of a country, many particulars must be carefully weighed ; but, after the notion has been attained, the pupil will wisely drop a great deal of the knowledge which he has temporarily mastered, deeming it enough to know where he can get the knowledge when he wants it. Again, when the object is to inculcate a great principle of action, the same course may be pursued. If, for example, a teacher wishes to impress upon his pupils the true idea of toleration, he may choose many incidents in history to bring it home to their minds, and may go into the minutest details of these incidents in order to awaken interest; but he succeeds in his purpose if he leaves a strong and accurate general impression, even though the pupil forgets most of the details which have been given him."

All this doubtless is, in the main, true. Knowing the limited capacity of the mind, the judicious teacher does not expect his pupils to retain all the minor details that have aided him in forming a general conception of any subject in geography, history, etc.; but every one is conscious of the fact that he does not purposely " drop " any " of the knowledge that he has temporarily mastered." As a matter of fact, he willingly retains all that he can of it, and the only

reason that he "drops" any of it is the fact that his memory is defective, and the matter drops out of its own accord. The average student has judgment sufficient to know that the facts and incidents that enabled him to form a more or less imperfect conception of the subject under consideration would be valuable material for that before-mentioned "keeper of the stores" to "bring forward" whenever he wishes to revivify that subject. If these details enabled the student to form a clearer conception originally, they will as surely enable him to form a clearer and more trustworthy *recollection* of it. But the teacher, knowing the limits of the average mind, does not expect it will be possible for the average pupil to remember all these minor incidents, and he does not, therefore, drill on them as he does on the more obvious features. It is maintained, however, that the student who, without much effort, is able to retain these details, has a great advantage over him who has not this power, and that his conception of it years after is apt to be much clearer.

For the foregoing, and many other reasons which he might present, did space permit, the author believes that verbal memory is a great aid to recollection, and is, therefore, an invaluable factor in any rational system of education.

More than this, as the brain is naturally more impressible in youth than in later years, he is persuaded that advantage should be taken of this principle to provide the mind with food for thought in future years.

"Would God," says Mr. Carlyle, "some one had taught me, when young, the names of the grasses and the constellations!"

The Faculty of Imitation is of such special value in education that every judicious teacher will both employ and cultivate it. A moment's investigation here will show how

some of the faculties reciprocally act on each other. Imitation, as before stated, depends largely on memory, since, unless the object is before the eyes at the time of sketching it, the mind must draw on memory for all the details. When the object is before the eye at the time of drawing, the accuracy of the sketch must necessarily depend, to a large degree, on the accuracy of the pupil's observation, since he can not put into the sketch what he fails to observe. So it will thus be seen that Imitation fosters close attention; but close attention has before been shown to cultivate the memory more than all things else combined; and memory again facilitates imitation.

The faculty of Imitation, again, engenders pleasant association in the minds of the little ones in connection with the subjects to be sketched, since the child, as well as the man, takes pleasure in contemplating the works of its own hands or brain, and all this tends to make the acquisition of knowledge a pleasant thing, and renders knowledge itself, therefore, a pleasant object of contemplation. When, on the other hand, knowledge is associated with kicks and cuffs, and dunce-blocks and brutal epithets, and wearisome tasks, it is difficult to see how the child can well classify it among the pleasant and desirable acquirements.

Drawing.—Drawing, then, is both a means and an end, and primary teachers who neglect it not only fail to avail themselves of a most valuable auxiliary, but also neglect a positive duty. It should have its place in every primary course of study, and every primary teacher should be qualified to give instruction in it.

It is not the author's intention here to lay out a course in primary drawing for the guidance of teachers; there are many inexpensive text-books which do this. He would only caution them to bear in mind that it is the *making of something* that gives relish to the whole exercise in the

children's minds, and that the drawing lessons, therefore, should, from the very first, be in the line of pictures or sketches of familiar *objects*—not in the making of meaningless and wearisome marks, *marks, MARKS*.

It is well, of course, to cultivate the hand and the judgment, but this is just as well done when the marks are so combined as to make them *mean* something.

Imitation is also utilized in teaching writing, or penmanship, and by taking proper advantage of it most children may be trained to become not only legible but beautiful writers at a comparatively early age. The pupil first imitates the copy, but after a number of repetitions the *conception* of the letters is formed in his mind, and his hand thereafter forms letters, and even words, automatically, without any seeming thought of their details.

The faculty of ASSOCIATION lies at the foundation of teaching beginners to read, and the primary teacher who is cognizant of this fact will neglect no opportunity to take advantage of it. Realizing that he has learned to associate spoken words with the objects or ideas which they represent, the teacher will endeavor to lead him on to associate these objects or ideas with the written or printed word.

ANALYSIS OF CHAPTER VIII.

Close connection of memory and recollection, and their dependence upon attention.

Difference between memory and recollection.

Memory a passive faculty, largely dependent on the physical impressibility of the brain.

The memory can scarcely be trained directly—the faculty to be cultivated is *attention*.

Attention may be secured by making the thing to be remembered interesting by pleasant association, by repetition.

Why equal attention will not secure equal results in different individuals.

DISCUSSION OF THE VALUE OF MEMORY AS AN EDUCATIONAL FACTOR.

The old-fashioned, possibly excessive esteem for it, and the new-fangled contempt for verbal memory.

Mr. Tate believes a good verbal memory a positive disadvantage, as tending to make a boy vain of his facility, and leading him to neglect training his judgment.

He also speaks of memory as a humble servant—a keeper of the stores, who brings forth whatever may be needed.

Query as to how this good servant is to bring forth stores unless they have been first laid in.

A good verbal memory must always be a help rather than a hindrance.

The general conception and the details.

Kiddle and Schem on "What ought to be forgotten."

It is not to be expected that all the minor details of a subject can be recollected, but there is no advantage in forgetting them.

To forget any item of knowledge must be a loss rather than a gain.

Advantage should be taken of the superior impressibility of the brain in early life to lay up a good store of useful knowledge.

IMITATION: Its special value in education.

Reciprocal action of memory and imitation.

Imitation cultivates attention, and engenders pleasant associations.

Drawing is both a means and an end.

It should always have a place in primary instruction.

The children should draw outlines of objects, not be drilled on meaningless and wearisome marks.

Imitation is also utilized in teaching penmanship.

ASSOCIATION is the faculty at the foundation of teaching beginners to read.

SUPPLEMENTARY QUESTIONS.

Do we remember sights?

Do we recollect them? Explain these statements

Do we both remember and recollect Sounds? Smells? Tastes? Impressions of Touch? Explain your statements.

It has been stated that memory depends very largely on attention; that the memory is a prominent faculty in early childhood; and that the attention at this period is weak. How can these statements be reconciled?

Would you regard early childhood as a good time for the study of foreign languages? Why, or why not?

Does the study of a foreign language without its grammar afford valuable mental discipline? Explain your statement by reference to the faculties it cultivates.

Can you give any other reasons than those given in the text in favor of cultivating the verbal memory?

Can you give any reasons aside from those quoted from Mr. Tate *against* it?

As a matter of fact, is it possible to "drop" any thing intentionally from the memory? Can we forget at will?

Should a child's first exercise in drawing be from nature or from models? Why?

Will he learn easier from imitation, or from analysis?

How will these statements apply to his learning to write? To speak? To read?

What method, then, of teaching reading to young children seems to you the most philosophical?

CHAPTER IX.

THE THIRD STAGE OF INTELLECTUAL DEVELOPMENT.

Understanding.—It will be remembered that the third stage of intellectual evolution is that point at which we may be said to “understand,” in the higher sense of the term, a principle or proposition. In one sense we have this faculty from the earliest dawn of our mental being ; but it is in the spontaneous exercise of our primitive judgments—it is an act of unreasoning judgment, more instinctive than intellectual in its nature. We know things with absolute certainty, but we can hardly be said, in the higher sense of the term, to *understand* them until we have arrived at this understanding by the exercise of some of our intellectual faculties.

During the earlier stages of intellectual development the mind has been laying in a large store of material. It has worked up its perceptions of the external world into a vast number of conceptions, or idealized forms of existence; and now, by its inherent energy and acquired strength, it is able still further to investigate the conceptions stored up, as well as to direct its attention more critically to the external world, and to classify, arrange, and systematize whatever falls under its observation. When it arrives at conclusions now, it must of necessity *understand* them, since it has worked them out for itself.

Forming Conclusions.—While this faculty is usually well developed with regard to most matters outside of his studies at a comparatively early stage of the pupil’s school-

life, he is often only half sure of even the most obvious propositions connected with his recitations. He arrives at his conclusions by legitimate means, perhaps, but he has done it in such a half-hearted and purposeless way that he is often ready to abandon these conclusions without an effort to defend them. It is obviously the teacher's duty to endeavor to break up this half-hearted, uncertain habit among boys and girls, and, as far as possible, to cultivate in them the habit of rational assurance in their conclusions; not, of course, that brazen kind which is the out-growth of mere egotism, but the modest certainty of those who have not jumped at their conclusions, but have arrived at them by careful thought, and who feel, therefore, that they have reason to believe themselves right, and to hold to their convictions until evidence be adduced to the contrary.

The teacher who rebukes a pupil for asking an explanation of *why* he is wrong, when there is occasion to correct any of his statements, makes a grave mistake—provided always that the pupil does not ask in an insolent way. It is better rather to encourage his rational assurance by questioning him in the Socratic fashion, until he is led to discover his own mistake, and thus arrive at the proper conclusion by methods at least partly native to himself. This will train him in habits of correct thought, and thus give him each day more and more reason to have faith in his conclusions.

It is well for a class to have confidence in the infallibility of their teacher's judgment, but it is vastly more important that they be led to exercise such care in arriving at conclusions that they will have intelligent faith in their own judgments. The class of scholars that change their answer without a moment's hesitation, on the slightest mark of non-acquiescence on the teacher's part, are not being educated in any proper sense of the term.

Cognitive Faculties.—For the reason that the faculties involved have now to do with knowing, or comprehending, by the aid of the understanding, their general character is said to be COGNITIVE, as shown in the table on page 58. The more important of the individual faculties involved are, as shown in this table, *abstraction, classification, generalization, explicit comparison, analysis, and judgment.*

By this it is meant to be stated that the capability of the mind in doing these special acts, or its susceptibility of being in these states, is now to be employed in attaining to intellectual understanding.

ABSTRACTION is the withdrawal of the mind from certain things or phenomena for the purpose of concentrating it upon other things or phenomena. The objects of phenomena thus singled out for consideration are said to be *abstractions*. “The utility of abstraction,” says Schuyler, “is evident: for by it we avoid the distraction and confusion which would result from considering many things at the same time. But it is not asserted that the mind can not at the same time attend properly to more than one thing. An illustration of abstraction is found in the philosopher, who, absorbed in thought, walks the crowded street, oblivious of what is going on around him. He is in a state of abstraction.”

Abstraction is not only necessary in order to concentrate the mind on any given subject or phenomenon, for the purpose of investigating it, apart from the distracting influences of others, but it is also necessary to efficient study under any circumstances. It is here as much as anywhere else that the principle of “learning to do by doing” has application. The habit of abstraction is only acquired by its practice. The teacher can, however, make it more practicable on the pupil’s part by her general management of

the school.* The less there is to distract the pupil's attention from study, the easier will it be for him to abstract his mind from his surroundings and concentrate it upon the theme or subject under investigation.

But valuable as this faculty is for purposes of study, it may be cultivated in a wrong direction, and become a veritable monstrosity. The person is then said to be "absent-minded." For the teacher, especially, this is most unfortunate, since his pupils will soon detect it, and take advantage of it to work annoyance. The properly educated man is the one that can devote his undivided attention to any theme of consideration without losing consciousness of whatever else is going on about him. Unless he retains the power of rousing himself at any moment, he is unfitted for the practical duties of life, and will certainly be imposed upon.

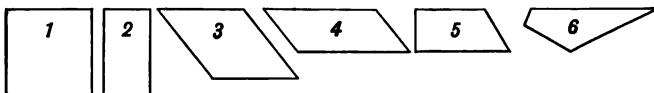
Generalization is that faculty by which the mind is enabled to examine its own conceptions, discover their

* Many a pupil wastes much the greater part of his time from the fact that his attention is distracted by his surroundings. It is often his own fault, no doubt, but the teacher's efforts to keep "order," or noisy methods of conducting recitations, are often the most distracting element in the school. A misdemeanor of some kind has been committed, or is supposed to have been committed, and instead of watching quietly to discover the offender, the teacher disturbs the whole school by inquiring in a loud tone of voice, "Who dropped that pencil?" "Who is studying so loud?" or who did this, that, or the other real or imaginary mischief. Every pupil in school is now interrupted in his study, his line of thought is broken, and it may take him some time to get down to quiet work again. Especially will this be true if, in addition to this general inquiry, the teacher stops to deliver a long lecture on the general depravity of the pupils, or administers corporal punishment to some one in the presence of the rest. For this reason, as well as for many others, it were better that when punishment must be administered it be done in private.

Then, again, it is exceedingly difficult to abstract the mind from its surroundings when the teacher habitually speaks in a loud and unnatural tone of voice in conducting the recitations. The author has a vivid recollection of a school he once visited, in which the teacher's tones in shouting out words to the spelling classes were actually startling. If they really succeeded in abstracting their minds from the teacher's habitual racket, they must afterward have found small difficulty in meditating in a nail factory.

common properties, and group them into more general classes. It also has reference to the mind's power of exercising similar judgment with reference to external objects of contemplation. Thus the child, from having seen a great many dogs, forms an idealized conception of that, to him, most interesting animal; in the same way he forms a conception of the cat, the sheep, the cow, the horse, the pig, etc. Now, by a further examination of these various conceptions, he discovers one general point of resemblance —*they each have four legs*. He thus has evolved the *idea* of a quadruped.

Again, he may observe a number of figures, or different forms, like the following :



They are very unlike in shape and size, but if he has been properly trained to use his eyes, the pupil will detect almost at a glance their one point of resemblance, and be able to refer them to a common class. He sees that they each have four sides, and he thus evolves the general notion of a *quadrilateral*. This he should be led to discover for himself, and when he has done it he is apt to "understand" what a quadrilateral is. He should then be encouraged to give a definition of it in his own words. If the definition prove faulty, the teacher should not correct it, but should lead the pupil to correct it himself by asking him questions after the Socratic* fashion. Thus, if he should frame his definition from looking at (1) alone, he might say that a quadrilateral is a figure bounded by four equal straight lines and having four equal angles. The teacher should then, instead of correcting him in the

* For illustration of the Socratic method, see Chapter III., Second Part.

ordinary way, ask whether (2) is then a quadrilateral. A little reflection will lead him to see that one part of his definition is wrong, since this figure has not four *equal* sides. He may then possibly say that it is a figure having four straight sides and four equal angles. If so, the teacher may ask him whether his definition applies to (3). He now discovers that the angles are not necessarily *equal*, and he is thus enabled to construct a perfect definition. This is the way that definitions should generally be evolved. The pupil should be led to a full comprehension of the idea, and should then be asked to describe it. When he has done this, he may fairly be said to know or understand it, and until he *has* done this his understanding of it may be safely doubted.

Comparison is the simultaneous examination of two phenomena for the purpose of deducting resemblances and differences. It is a most valuable educational agency, and it may be illustrated by reference to any two of the foregoing figures. Thus, in (1) and (3), for example, the pupil should be led to discover the following points of resemblance : 1. They are each enclosed by lines. 2. All the lines in each are *straight* lines. 3. The opposite sides of each are parallel. 4. They each have four angles. 5. The opposite angles of each are equal.

Points of difference : 1. While all four of the angles of (1) are equal, only the opposite angles of (3) are equal. 2. They are of unequal altitude. 3. They are of unequal area. 4. They are of different form or shape. 5. While the angles of (1) are all right angles, those of (3) are all oblique.

When this faculty is applied to the investigation of phenomena other than objects it may become much more involved, but this will be sufficient to illustrate its application in arriving at an intellectual understanding of facts.

ANALYSIS OF CHAPTER IX.

The third stage of intellectual development, where we really *understand*.

This power of understanding principles distinguished from the primitive understanding of the infant.

The mind has now accumulated a considerable store of conceptions, and is able to work out conclusions, to classify and systematize.

The lack of confidence in their own conclusions frequently shown by pupils.

The teacher should endeavor to cultivate a reasonable assurance in pupils and should not rebuke them for asking respectfully *why* they are wrong, when correcting their statements, but lead them, by judicious questions, to see and correct their errors.

It is of great importance that pupils should learn to reason so carefully and clearly that they may feel confidence in their conclusions.

THE COGNITIVE FACULTIES : Enumeration of the more important ones.

Abstraction—defined—illustrated—necessary to successful study—how the habit may be formed—how the teacher can provide favorable conditions for its cultivation.

How some teachers interrupt their pupils' studies and render abstraction impossible by noisy and meddlesome methods of discipline, by scolding, by administering corporal punishment in public, by conducting recitations in an unnaturally loud tone.

Dangers of excessive abstraction.

This is peculiarly unfortunate for a teacher.

The properly educated person is he who can concentrate his mind on a subject, and yet not lose consciousness of his surroundings, or the power to rouse himself promptly when necessary.

Generalization—the classifying power. Illustrated by the child's observations of domestic animals, by his study of quadrilaterals of different shapes.

Leading the child to form definitions, and to correct them when faulty, illustrated by the quadrilaterals.

Comparison—defined—value as an educational factor—illustrated by comparing two of the quadrilaterals.

SUPPLEMENTARY QUESTIONS.

Does the bee "understand" the nature of the cells it so perfectly constructs? By what power does it work?

Does a boy "understand" the law of atmospheric pressure when he lies down to drink from a spring? By what power, or faculty, then, does he know that the water will rise into his mouth in opposition to the force of gravity?

Has it been your experience that the mind is directed only to the external world during the earlier stages of its existence?

Why is it that the knowing, in the sense of the understanding faculties, are apt to take more vigorous hold of matters outside of school than inside?

How may the teacher check undue egotism on the part of a pupil without weakening his rational assurance?

Can you name any other school-room transactions than those mentioned in the text that would be liable to distract attention?

Is it good logic to say that pupils must be accustomed to study in the midst of distracting exercises, since in after life they will often be obliged to abstract their thoughts amidst the most distracting surroundings?

What are some of the logical conclusions from the above statement, if valid?

What was the theory of the old-fashioned "loud school"?

What arguments can you advance in favor of administering necessary discipline *in the presence of the school*? What arguments can you advance *against it*?

Did the public punishment of culprits in the "good old times" tend to increase or to diminish crime?

Can you give other illustrations of the employing of the faculty of *generalization*? Give other applications of *comparison*.

What is meant by *analysis*? Give illustrations.

What is the reverse of analysis called? Give examples.

CHAPTER X.

THE FOURTH STAGE OF INTELLECTUAL DEVELOPMENT. INDUCTIVE REASONING AND ITS APPLICATION TO TEACHING.

WE discovered in the last chapter a great advance of the mind's intellectual grasp in the third or cognitive stage of its evolution. We saw how it acts by its reflective power upon its former stores of information, and molds these into general principles and abstract truths. We saw, also, how it may reach outward, and by comparison, abstraction, analysis, and other powers, classify, systematize, and arrange until order is made to appear where to the less developed understanding seems confusion. We have seen that the human mind, by the exercise of these faculties, rises far beyond the realms allotted to the brute creation, who have not this god-like power of seeking after, finding out, and knowing general truths.

Reason.—But exalted as this stage of intellectual evolution is, it is not the highest. There is still a loftier height to which the soul may climb, and the path by which its feet ascend almost to the celestial gates is **REASON**. Step by step it climbs, its horizon widening until its vision well-nigh sweeps the universe and scans the lurking-place of many a hidden world; it makes the solar waves its toys and playthings, using them in sportive picture-making; it grasps the waves of light that journey from the very verge of space's shoreless sea, and forces each to tell the secrets of its far-off home; it reaches forth its subtle hand to grasp

the all-destroying thunder-bolt, and makes it tame to do its will and bear its messages around the earth with speed that makes the flight of Puck in Shakespeare's dream seem ordinary. Aye, more than this, it turns the pages of the ponderous stone-clasped volumes of creation's genesis, and reads the records of a million years ago; and who shall say what deeper hidden mysteries it may yet solve ?

It is this tremendous force, this inner power of man that laughs at time and space, and penetrates the secrets of the deep; it is this untamable, resistless spirit, throned within a little mass of living clay; it is this most subtle, most ethereal essence—most like himself of all that the Creator trusted to man's care—it is Reason, with its boundless possibilities, that is now for a season to be trusted to your hands, to set in order or to disarrange, to plume for loftier flights or to clip its wings, to leave it groveling in the dust, companioning with creeping things or wallowing with swine !

Deduction and Induction.—Reasoning is of two general kinds or, more properly speaking, it assumes two general forms: In the exploration of a great river system, one may start at the mouth of the main stream, and by following it up, explore in turn its countless tributaries, with all their branches; or, pursuing the reverse process, we may start at the beginning of the various rivulets, and trace them downward to their common mouth at the great ocean. In the one case we have reached the smaller through the greater, the special through the general; while in the other we have reversed the process, and arrived at the greater through the less, the general through the special. The former method is called DEDUCTION; the latter, INDUCTION.

Inductive Reasoning.—INDUCTION, or the Inductive Method of Reasoning, may be further illustrated thus:

Two bodies of very unequal weight, as a coin and a feather, are placed at the same height in a long glass tube from which the air is carefully extracted by an air-pump. When let fall, they are both seen to strike the bottom of the tube at the same instant—that is, they both have fallen through this space in the same time.

The noticing of the fact that these two bodies fall through this particular space in the same time is a fact of observation. I may infer from this observation that should I repeat the experiment, under the same circumstances, at another time; or that, should I use any other coin and any other feather; or that, should I use any other two substances whatever, the conditions as to the vacuum remaining the same, the same results would follow. Such a conclusion, or supposition, is known as an Inductive Inference, or as an Induction. Let us now examine the grounds for such inference.

Law of Universal Causation.—Our object in performing the experiment has been to satisfy our minds as to whether bodies of different weights, or different specific gravity, will fall equally fast if acted on by gravity alone. We know of but *one* thing that could interfere with their free motion, and that is the resistance of the air. By pumping out the air we have “isolated the phenomenon,” and may now observe the effect of gravity alone.

We are assuming that there is a cause for the falling of these objects, that nothing can happen without a cause, and that no changes in the happening can take place without being preceded or attended by circumstances which, if rightly understood, would fully account for them.

This principle, though we may not frame it in words, is what is known as “*The Law of Universal Causation;*” and it is acted on by rational men in all the practical affairs of life.

No doubt this law is in part the result of our deductions, drawn from our earliest experiences, but it is also a necessary condition of our thought—an intuition.

Law of Uniformity of Nature.—We have tried the above experiment with only one coin and one feather, and at only one time; why should I infer that if I used different coins and feathers, or performed the experiment at different times, the result would be the same? By another law, as deeply seated in our nature as the one above considered, we know instinctively that the same causes or combination of causes will invariably be followed by the same effects or combination of effects; or, to state the proposition in different words, that “Wherever the same antecedents, and none others, are introduced, the same consequents will invariably follow. This principle is known as *The Law of the Uniformity of Nature.*”

Thus, it will be seen, we have arrived at a general truth from the investigation of a particular phenomenon. *Induction* is, therefore, seen to be *the legitimate inference of the general from the particular.*

Converse of the Law does not Hold.—It is necessary to observe, and to impress upon the minds of our pupils the fact that the converse of the Law of the Uniformity of Nature does not hold, though, of course, we should use none of this technical language. While it is always true that the same cause (no counteracting circumstances) will produce the same effect, it does *not* follow, by any means, that the same effect is necessarily produced by the same cause, though much of the reasoning among children, and even among children of a larger growth, is apt to be of this fallacious nature. We may illustrate its absurdity in some such way as this :

A given dose of poison may be sure to produce death unless its effects are counteracted; but it would be most

absurd to assume, for this reason, that wherever death occurs it is due to poison. It must also be observed that an effect is not necessarily due to *one* cause alone. It may require the combined action of several to produce it. Thus, death may be the result of an enfeebled constitution, in conjunction with some sudden illness or over-exertion or any one or more of a score of other causes, no one of which *alone* would have proved fatal. So, too, it must be ever borne in mind that the success or failure of a pupil may not be wholly or even principally due to the cause we happen to have in mind at the moment, even though we may be certain that it was in operation; neither can we affirm with certainty that the general success or failure of school is due to any given method. In arriving at legitimate conclusions in matters of this kind the greatest care must be observed. Many of the tests to be applied will naturally suggest themselves to the keen-witted teacher, but in order to be able to guide pupils safely it would be well to read carefully some good work on Inductive Reasoning.

Induction and Science.—Most of the physical sciences are based so largely on observation and experiment that the Inductive Mode of reasoning is especially adapted to them and, for the same reason, they are especially adapted to its cultivation. By performing a few simple experiments in natural philosophy, with the aid of such apparatus as any intelligent teacher may extemporize, enough of the general laws of nature may be illustrated to start the mind of many a thoughtful boy or girl to thinking and investigating for itself.

The author well remembers an evening spent at the home of a friend in a rural district, where the intelligent teacher had that afternoon been giving a few such experiments in homespun science. The heads of the boys were

full of it, and it was late before their intelligent discussions of the principles involved were ended.

Inductive Method should not be too strictly followed.—A strict adherence to the Inductive Method, in our ordinary teaching, would require that instead of teaching definitions, principles, and rules, and afterward illustrating them by facts, we first call the pupil's attention to a sufficient number of facts to establish the principle, or rule, or definition, and then require him to make it for himself. Undoubtedly this is the more scientific way, but it will be observed that the books which profess to be written on the Inductive Plan usually state the principle in the blackest of full-faced type *at the beginning* of the section devoted to its discussion. The reason is that this gives the pupil something definite to work to, and the principle is, therefore, often mastered in a much shorter time, and stated in clearer terms, than the pupil would be apt to work out wholly by himself.

The stating of a principle first, or the giving of a definition before its explanation, is not objectionable, in case the full explanation *immediately follows*. It is the giving of definitions, and the statement of principles and rules, *without* explanation or illustration, that made the old system of Deductive Methods so void of good results.

The Deductive Method of reasoning is not without its value, even in common-school education, and our next chapter will be devoted to illustrating the rational combination of the two methods in teaching.

ANALYSIS OF CHAPTER X.

Lofty character of the third stage of mental development.

The much more exalted nature of the fourth stage, or Reason.

Brief summary of some of the more wonderful achievements of the human reason.

Two general forms of reasoning—Inductive and Deductive. Illus-

trated by exploring a river system, beginning at its various sources, or beginning at its mouth.

Deduction proceeds from the general to the particular; Induction from the particular to the general.

INDUCTIVE REASONING :

Illustrated by the falling of a coin and a feather in a vacuum.

The inductive inference from this experiment.

Examination of the grounds of this inference.

Principle of Universal Causation. We know this principle both by intuition and by experience.

The Law of the Uniformity of Nature.

Statement of the chain of inductive reasoning from which we infer the law of falling bodies in a vacuum. This shows how the general may be legitimately inferred from the particular.

The converse of the Law of the Uniformity of Nature does not hold —illustration.

An effect is not necessarily due to one cause alone. The success or failure of a pupil or a school will probably depend on a combination of many causes. The greatest care necessary in considering whether we have found all the causes of any effect.

The Inductive Method of reasoning specially applicable to the Physical Sciences. The study of these sciences especially adapted, therefore, to train minds in inductive reasoning. Excellent and far-reaching results that may follow from showing children a few experiments in natural philosophy.

We do not strictly adhere to Inductive Methods in our ordinary teaching, because, while their use is stimulating to the mind, yet their *exclusive* use makes the way too hard for the little learner, forcing him to find everything out for himself, instead of giving him the benefit of what older and wiser people have learned by ages of research.

It is not objectionable to state the principle first, if its explanation immediately follows. It is rules without explanations that should be avoided.

The Deductive Method is not without its value, even in common-school work.

SUPPLEMENTARY QUESTIONS.

Can you mention any other wonderful things, aside from those mentioned in the text, that have been discovered or accomplished through man's reason?

Can you give a clear, original illustration of the difference between induction and deduction ?

To which class does reasoning from analogy belong ? Give an illustration.

Is there any difference between induction and empiricism ? If so, what ?

Can you give some other illustration of the fact that we instinctively assume the law of universal causation ?

Can you give other illustrations of the fact that we assume the law of the uniformity of nature ?

What are some of the mistakes or errors most liable to be made by the careless in the application of this law ?

Give other illustrations of the fallacy of assuming that the same effect is produced by the same cause.

Why does the same cause not always seem to produce the same effect ?

Mention a few of the more simple experiments that may be performed by the teacher in order to wake up the mind and set pupils to investigating the laws of nature by the inductive process.

CHAPTER XI.

THE RATIONAL COMBINATION OF THE INDUCTIVE AND THE DEDUCTIVE METHODS IN TEACHING.

IT was stated in the last chapter that the Inductive Method of reasoning starts from the observation of the particular, and by the application of the Laws of Universal Causation and Uniformity of Action in Nature, arrives at general principles. It was also stated, but without extended illustration, that the Deductive Method follows the reverse course—starting with the general and leading back to the special.

How the Inductive precedes the Deductive.—It will be seen that the general principle must be established before the Deductive Method can be applied, and that unless this general principle be intuitive, like the axioms in mathematics, for example, the Inductive must necessarily precede the Deductive. Thus, the surgeon, from having dissected a few bodies, or from having seen them dissected by others, learns the science of Anatomy. In the few subjects he has examined he has observed that each internal organ has its special locality, shape, relation, size, etc. He therefore reasons by induction, not only that the members of the human race generally have the organs he has found in the individuals investigated, but that these organs will have the same general locality, shape, size, etc., in *all* individuals, except in such few cases as, owing to counter-acting circumstances, have had the uniform course of nature interrupted, and are, therefore, exceptional or ab-

normal. His faith in the fact that the cases he has examined are the normal rather than the abnormal is greatly strengthened, and amounts to positive certainty when he compares the results of his own observations with the recorded observation of a multitude of others. He now reasons deductively, when any individual of the human species requires surgical treatment, that this subject, being a member of the human race, must have such or such an organ in such or such a place, and must not have it located an inch or two inches above or below this point, or to the right or the left of it. On this evidence he stakes the life of the patient, and thrusts his lance, knowing that he will not pierce a vital organ or sever any of the larger veins or arteries. His reasoning, reduced to the form of a syllogism, is something as follows :

" In the human body the organ O is located at the position L ; it is N inches in diameter. This patient is a member of the human race; therefore he has the organ O in the locality L , and with the diameter N . Consequently, if I pierce this wound or ulcer at the distance of more than one half of N inches from the center of L , I will not strike the vital organ O ."

Should he now be ignorant of the fact that the large artery A runs just above the center of O , and should he sever this with his lancet, causing the death of the patient, he would be held responsible in the courts for the death of the person in question. Not having all the facts of Induction which he should have had, it has been impossible for him to make the necessary Deduction, and the result is death to the patient and ruin to the surgeon.

If such a rigid enforcement of justice were to be applied to the Doctors of the Mind and Surgeons of the Soul, how many of us would be outside of prison walls? Probably only those who had already been hanged.

Necessity of Thorough Knowledge.—The anatomy of mind is quite as much a science as is that of physical organism; and, like the latter, it is an Inductive Science, all that is valuable in it being the result of observation and experiment; and though it may not be possible for each one of us to make all these observations and conduct these experiments ourselves, before beginning the work of teaching, the results of the observations of thousands of competent observers have been recorded, and we should, as far as possible, avail ourselves of them before presuming to thrust the lance among the subtle tissues of the soul. If it is criminal negligence for the surgeon not to have sufficient inductive knowledge of the human system to enable him to make the requisite deductions as to where it is dangerous to probe, or how to dress and treat a wound, what must be said of those of us who attempt to teach, in utter ignorance of the anatomy of mind and soul?

The mutual relation of the Inductive and the Deductive may be further illustrated by, and applied to, our ordinary school-work in arithmetic.

Deduction without Induction.—By courtesy of the publishers of this work, the author has before him a copy of one of the first arithmetics ever printed in the English language. It is called “The Schoolmaster’s Assistant,” and is dedicated “to the Reverend and Worthy Schoolmasters in Great Britain and Ireland,” by Thomas Dilworth, Schoolmaster in Wapping, 1742. It is further stated that the work is a “Compendium of Arithmetic, both Practical and Theoretical.” But in spite of this statement, there is not the slightest attempt at the explanation of a principle from beginning to end. The principles are all stated dogmatically, in the form of rules, and the pupil is then set to work to apply these, deductively, in the solution of problems. More than this, the rules are often so blindly

stated that it is difficult to see how pupils were enabled to follow them.

Here is the way subtraction is treated, and it is a fair illustration of the way all other subjects were handled, before the Inductive methods came into use:

Q. What is the use of Subtraction ?

A. By taking a less Number from a greater, it shows the difference between both.

Q. How many Sorts of Subtraction are there ?

A. Two : Simple and Compound.

Q. What is Simple Subtraction ?

A. Simple or Single Subtraction is the finding a difference between any two Numbers whose Signification is the same; as, the Difference between 6 yards and 4 yards, is 2 yards.

Q. How are Numbers to be placed in Subtraction ?

A. With Units under Units, Tens under Tens, &c., as in Addition.

Q. What Rule have you for the Operation of Subtraction in general ?

A. When the lower Number is greater than the upper, take the lower Number from the Number which you borrow, and to the difference add the upper Number, carrying one to the next lower Place.

Q. What Number must you borrow when the lower Number is greater ?

A. The same which you stop at in Addition.

Q. How do you prove Subtraction ?

A. By adding the Remainder and the lesser Line together, which will always be equal to the greater Line. Or, By subtracting the Remainder from the greater Line, and that Difference will always be equal to the lesser Line.

Q. What is Compound Subtraction ?

A. Compound Subtraction produces a difference between any two Sums of divers Denominations.

And then, without so much as even an attempt at illustrating the mechanical solution of a problem, the pupil is given a long array of examples, both in simple and compound subtraction, couched in language which fairly bristles

with the dictatorial air of the old-time schoolmaster—like the following :

There were 4 Bags of Money, containing as follows, *viz.* The First Bag 34*l.*, the second Bag 50*l.*, the third Bag 100*l.*, and the fourth Bag 150*l.*, which were to be paid to several persons ; but one of the Bags being lost, there were but 234*l.* paid ; *I demand which Bag was wanting?*

This is an example of teaching entirely by the Deductive Method. The idea that pupils could be led to *understand* the rules they employed does not seem to have found lodgment in the heads of the school-masters of the good old days. How pupils ever managed to follow, even in the most mechanical way, such rules as the following is a mystery :

Q. How do you reduce a Fraction of one Denomination to the Fraction of another, but less, retaining the same value ?

A. Multiply the given Numerator, by the Parts of the Denominators between it, and that Denomination you would reduce the fraction to, for a new Numerator, and place it over the given Denominator.

Possibly most of us could still work such a problem, in spite of this rule, but it is safe to say that very few of us could *follow* the rule. Yet this is just what our great-grandfathers were compelled to do, and it would doubtless have been a painful experiment for one of them to have attempted to solve a problem by any other means than by the rule laid down, or to have asked *why* he did so and so. It was all-sufficient that *the rule said so*; and the worst of it is that this method of teaching is not yet wholly obsolete. The author must not be understood as condemning utterly the use of rules. He will illustrate presently how they may be rationally employed; but it is the habit of requiring children to work blindly by meaningless rules that is objected to, especially in cases where they might easily be

led, by Inductive methods, to a clear conception of the principles involved.

Deductions derived from Induction.—Let us suppose that the pupil, wholly unfamiliar with the subject, is given such a problem as this :

“Divide $\frac{5}{2}$ by $\frac{2}{3}$.”

The teacher may go on and explain inductively the process leading to the required solution, and this is a very good way, but not the best. Rather so direct the minds of the pupils, by skillful questionings, as to lead them to *discover* the principle or rule in part for themselves.

The teacher may question them somewhat as follows: “How many times are 5 men contained in 10 hours?” They will answer in substance that 5 men can not be said to be contained *at all* in 10 hours, because they are not the same kind of things. Their attention has been drawn to this fact long before, but it is well to have them keep it fresh in mind. Changing the question, “How many times are 2 gallons contained in 40 quarts?” After a few moments’ hesitation, most of the pupils will correctly answer, “Five times.” When asked to explain how they obtained this result, they will say, in substance, that 2 gallons equal 8 quarts, and that 8 quarts are contained in 40 quarts, 5 times.

“What did you have to *do*, then,” they may be asked, “before dividing?” They will say that they had to “make the numbers alike,” or to “change them to the same name,” or something else that means about this. The teacher may then say that we commonly speak of this as “reducing them to the same denomination.”

Then might follow some such question as, “How many times are $\frac{3}{2}$ contained in 4?” As they have had previous drill in this kind of work, they should promptly answer, “Six times,” and when asked for an explanation, they will

say that 4 is equal to *twelve thirds*, and *two thirds* are contained in *twelve thirds* *six times*.

Then, again, in answer to the question, "What did you really do, before dividing?" they will say that they reduced the two numbers to the same denomination.

It is then asked: "What must we really do before dividing $\frac{4}{7}$ by $\frac{2}{3}$?" Some of the class will see that we must, in fact, reduce them to a common denominator—an operation with which they are already familiar. The members of the class may then be permitted to perform this reduction, and they will soon have the results— $\frac{4}{7} = \frac{12}{21}$ and $\frac{2}{3} = \frac{14}{21}$. They will now have no difficulty in seeing that *fourteen twenty-firsts* are contained in *fifteen twenty-firsts* $1\frac{1}{14}$ times, for the same reason that *14 bushels* are contained in *15 bushels*, or that *14 things* of *any kind* are contained in *15 things* of the *same kind* $1\frac{1}{14}$ times.

They could now, undoubtedly, work any other example of this kind by following out the same Inductive Method of reducing to a common denominator, and dividing, as we have here done; but this would be much too slow for practical purposes; so, now that the pupils understand what they must really do, the teacher may pursue these inductions a little further to evolve a very practical general statement or rule.

In reducing the above two fractions to a common denominator, let the pupils only indicate the multiplication by means of the proper signs, without actually performing the work—that is, by multiplying both terms of each by the denominator of the other.

Thus : $\frac{5}{7} = \frac{5 \times 3}{7 \times 3}$ and $\frac{2}{3} = \frac{2 \times 7}{3 \times 7}$. The teacher next reminds the pupils that since these fractions have now a common denominator, the first of them is divided by the second by dividing its numerator by the numerator of the second

—that *two* thirds are contained in *four* thirds twice, etc. etc. Consequently,

$\frac{5 \times 3}{7 \times 3} \div \frac{2 \times 7}{3 \times 7}$ must be the same as $(5 \times 3) \div (2 \times 7)$; or,

stated in the fractional form, $\frac{5 \times 3}{2 \times 7}$.

Now, by inspecting this result it will be seen that the numerator is made up of the product of the numerator of the dividend and the denominator of the divisor; and that the denominator of the answer is the product of the denominator of the dividend and the numerator of the divisor. That is, the *upper* part of the dividend has been multiplied by the *lower* part of the divisor, and the *lower* part of the dividend has been multiplied by the *upper* part of the divisor—the same result we would obtain by *inverting* the terms of the divisor, and then multiplying the numerators together for a new numerator, and the denominators together for a new denominator. This principle should be further illustrated by the solution of other problems.

Thus : $\frac{3}{7} \div \frac{5}{8} = \frac{3 \times 8}{7 \times 8} \div \frac{5 \times 7}{8 \times 7} = \frac{3 \times 8}{5 \times 7}$, the same result as would have been obtained by inverting $\frac{5}{8}$, making it $\frac{8}{5}$, and then multiplying $\frac{3}{7}$ by it.

Or, in other words, $\frac{3}{7} \div \frac{5}{8} = \frac{3}{7} \times \frac{8}{5} = \frac{3 \times 8}{7 \times 5}$.

From this and other illustrations it will be seen that to divide one fraction by another, we *invert the terms of the divisor and then multiply, or proceed as in multiplication, or multiply the numerators together for a new numerator and the denominators for a new denominator*. This same rule may, of course, be arrived at by other methods of induction. The pupils having now fairly reached the rule by legitimate inductions, should be permitted to employ it ever after in their practical work. To require the pupil to re-explain

every principle every time he uses it is nearly, if not quite, as illogical as to require him to use it without any explanation at all. The making of the rules is *Induction*; the applying them to the solution of problems is *Deduction*. The actual course of reasoning which the pupil employs, though he does not frame it in words, would be: "Any problem in division of fractions may be solved by inverting the terms of the divisor, and proceeding as in multiplication. *This* is a problem in division of fractions; therefore it may be solved by inverting the terms of the divisor, and then proceeding as in multiplication."

General Observations on the Use of both Methods in Teaching.—In most cases the rule will be reached by much simpler induction than in the case of division of fractions, and in many cases the inductions are so obvious that the intelligent pupil sees the method of solution at a glance, and needs no rules. This is true in most of the cases of percentage and its applications, and rules in such cases serve rather to confuse than to help the pupil: here he works best by employing only deductive methods. But there are many other cases, such as multiplying or dividing one fraction by another, finding the greatest common divisor and the least common multiple, multiplying or dividing one decimal by another, square and cube root, arithmetical and geometrical progression, simple and compound proportion, and most of the problems in mensuration, where, without the use of derived rules or formulæ, his progress would be much too slow for the practical purposes of a stirring age. More than this, there are even a few cases where it becomes necessary to employ the deductive method, and work by rule without having made the inductions and deductions on which the rules are based. Thus, every pupil should know how to find the circumference, or area, of a circle from its diameter, but he can not understand *why* he multiplies the

diameter by 3.1416 to find the circumference, or why he multiplies the square of the diameter by .7854 to find the area, until after he has studied geometry and been drilled in the higher applications of deductive reasoning employed in demonstration. No more can he understand many of the other rules of mensuration, such as finding the contents of a sphere, a cone, a pyramid, etc. But these are exceptional cases, not the rule by any means, and the teacher must see that in cases where the rule *can* be reached through inductive reasoning, the pupils do no blind, unthinking work.

For reasons similar to the ones given here, both methods should be employed in grammar, spelling, and their kindred branches; and we will greatly err in teaching if we do not lead our pupils to draw many valuable deductions from their rich stores of inductive inference in history, geography, and other branches.

ANALYSIS OF CHAPTER XI.

Restatement of the Inductive Method.

The Deductive follows the reverse course.

A foundation must be established before the Deductive Method can be applied, unless it is intuitive.

THE INDUCTIVE, THEREFORE, USUALLY PRECEDES THE DEDUCTIVE METHOD : This illustrated by the case of a surgical operation. How, in his inductive studies, the surgeon determines that the cases he has examined are the normal, rather than the abnormal—His responsibility.

How the teacher would fare if held equally responsible for mischief done.

The anatomy of the mind, like that of the body, is an inductive science.

How we may supplement our own personal experience.

Teaching is largely a deductive science, based on the inductive science of the mind.

ILLUSTRATION OF THE FOLLY OF USING THE DEDUCTIVE ALONE, FROM "THE SCHOOLMASTER'S ASSISTANT": (1) All its principles and rules stated dogmatically and blindly. (2) Illustration from the subject of subtraction. (3) Reduction of fractions to lower denominations. (4)

What our great-grandfathers had to contend against. (5) This method not yet wholly obsolete.

The combination of inductive and deductive reasoning in teaching further illustrated—in relation to the problem of dividing one fraction by another.

By inductive processes, directed by the teacher's questions, the pupils are led to see clearly that this can be done by reducing both to a common denominator. By further inductions, they are led to evolve the short-cut of the common rule.

The reason of a rule once understood, the pupil should not be required to explain it whenever used.

Division of fractions involves much more difficult reasoning than most problems in arithmetic. In many cases the inductions to be made will be seen at a glance by a bright pupil. This is especially true in Percentage. In such cases it is best to use no rules. In many cases, however, rules are necessary; but they should, as far as possible, be led up to inductively. There are a few rules, however, that can not be explained in common school work because they depend on the higher mathematics. Examples of such rules.

Both methods of reasoning should be employed in teaching other branches than arithmetic : as language, history, and geography.

SUPPLEMENTARY QUESTIONS.

Can you show, by deductive reasoning, that Illinois and Iowa must be largely engaged in raising hogs? Make a statement of the process by which a pupil should arrive at such a conclusion, even though his geography said nothing on the subject.

Is it wise to have pupils memorize the productions of each State and Territory ? Why, or why not.

Illustrate how the pupil should be led to determine, by induction, the industries and products of New Mexico, of Wyoming, of Idaho.

To what extent can they be led to determine, by induction, the habits, customs, and general characteristics of the future population of these various sections ?

When we say of a person that "he is a far-sighted business man," do we mean that he reasons from induction or from deduction ? Give illustrations.

Can the man who measures the circumference of a circle by a tape line, and finds that it is 3.1416 times the diameter, be said to have estab-

lished the fact by induction? What is such a process commonly called? Is it better, in an educational way, than no proof at all? Why, or why not?

Is it, or is it not, true that from having inspected a geometrical series, and observed the fact that the 2d term is found by multiplying the 1st term by the ratio, the 3d by multiplying the 1st by the square of the ratio, the 4th by multiplying the 1st by the cube of the ratio, etc., we do not know *positively* that the 10th term will be found by multiplying the 1st by the 9th power of the ratio; or, in general, that the n th term will not be found by multiplying the 1st term by the $(n-1)$ st power of the ratio?

What process of reasoning is this? Does it arrive at an absolute *demonstration* of the rule?

CHAPTER XII.

THE MORAL FACULTIES AND THEIR CULTIVATION.

OUR Moral Faculties may be said, in general, to be those powers of the soul that are called into operation in knowing the right and the wrong, in discriminating between them, and in determining our actions with regard to them.

Conscience.—That there exists such a thing as abstract goodness or rightness is a fact of which the soul is intuitively conscious, and it is impossible for us to conceive of it being otherwise. For any rational being to believe that truth is a vice and that falsehood is a virtue, or that dishonesty is right and that honesty is wrong, is as far beyond our power of conception as that he should be so constituted as to believe that two parallel lines can form an angle with each other, or that effects may exist without causes. There *is* such a thing as right, and truth, and virtue, and the knowledge of this fact is as inseparable from us as is our very being. It does not follow from this, however, that we intuitively know that any given act, or motive, or line of conduct is right or wrong. Before determining this, the mind must compare the given motive or action with the intuitive model its Creator has provided, to see whether or not the two agree. The determining of the rightness or wrongness of any specific act or motive is, therefore, seen to be a matter of judgment, and it is as liable to error as are matters of judgment on questions in which the moral element plays no part. The faculty which makes this com-

parison of the rightness or wrongness of an act or motive with the perfect model is called CONSCIENCE.

Dependent on Judgment.—Let us thoroughly understand this point before proceeding further, since a great amount of misunderstanding exists regarding it. Every rational creature knows intuitively that honesty is right, and that dishonesty is wrong. But every person is often uncertain where to draw the line between prudence and dishonesty in business affairs. If his judgment dictates that he can not conduct a certain line of business with a less profit than 20%, his conscience will dictate that his duty to his family will not allow him to charge less than this; but if, on the other hand, his judgment dictates that 10% is all that is necessary in order to do business, his conscience will dictate that he ought not to charge 20%. The act of judging as to the amount of profit necessary in order to cover expenses and yield a reasonable return for the money, etc., invested, is *not* conscience, as this decides no moral question; but the determining whether it is right or wrong to charge 20% when 10% is sufficient, necessitates the comparing of this act with the soul's God-given ideal, and this *is* an act of conscience. It will, however, depend on and be governed in its decision by the former judgment as to the necessary profits. If this former judgment is wrong in regard to 20% being necessary, the decision of conscience will do an injustice to the public; and if the judgment that 10% is sufficient proves wrong, the conscience, in deciding that he ought not to charge more than this, will do an injustice to the tradesman and his family.

Again, every one knows that "to steal is base." But there come times in the experience of men, under certain circumstances, when the judgment has to decide whether certain acts are theft or not—as when, in time of war, the soldiers forage for subsistence, or when it seems to become,

necessary to appropriate the property of others to sustain the life of the helpless. If the judgment decides that these acts are not theft, the conscience may approve of them; but it is evident that in case the judgment erred in this decision, the decision of the conscience, based on this, would prompt a wrong act. How far the person is morally responsible for his acts, under these circumstances, is another question. It is only held that our conscience is liable to err in its decisions.

For this reason, two persons may hold directly opposite views in regard to the rightness of an action, and both be perfectly "conscientious" in regard to it. We will do well to keep this fact ever in view in our dealings with children. No child can possibly be induced to believe a thing is right as long as his conscience dictates that it is wrong; and to require him to do the act under such circumstances must, of necessity, compel him to do violence to his conscience and to his moral nature. The teacher should at least give him clear reasons as to why the action is right before requiring him to do it. If she can not give such reasons for the rightness of the act—that is, if she can not clearly show that it falls under some one of the general classes of acts that are self-evidently right—she will do well to stop and consider as to whether her own judgment may not be at fault. Cases of this kind frequently occur in school. For example, a boy sees something or other done behind the teacher's back that causes him to laugh (for some inscrutable reason, things *do* seem funny in school that one could not be induced to laugh at elsewhere). The teacher turns suddenly on the giggling boy, and demands to know what he is laughing at. To tell will doubtless get one of his playmates into trouble, and he often reasons that it would be wrong for him to do this. To tell, he thinks, would be MEAN, while to obey his teacher

on general principles is only *right*. His conscience, therefore, casts its ballot against the "mean" act nine times out of ten, and he will bear the severest punishment rather than turn informer. Generally, it is imprudent to ask such questions as the one in this case. The chances are that compelling the pupil to answer (if, indeed, the teacher succeeds in doing this) will compel him to do what he intuitively feels to be wrong, and his moral nature is weakened by the act of yielding. There *are* cases where the teacher is justified in calling pupils as witnesses and requiring them to testify; but these should be cases where it can be clearly shown to any reasonable pupil that the matter *ought* to be told.

Moral Judgment of Others.—It is seen that our moral judgments do not stop with determining the rightness or wrongness of our own actions. They reach outward and compare the actions of others, as well as those of ourselves, with our inborn perfect conceptions of moral rectitude. The operations of the mind in arriving at a decision as to the rightness, and, consequently, the oughtness, of an act or course of conduct, are very similar, whether it be with reference to ourselves or to some one else. Says Dr. McCosh, page 251, in his admirable work on "The Intuitions of the Mind":

"We seem first to have a necessary conviction in regard to the moral nature of our own actions, and thence we arise to convictions which look to moral qualities, which, being apprehended by us, we declare to be good or evil, wherever they are to be found, and whoever may be the possessor."

With the deepest respect for the opinions of the learned psychologist above quoted, the writer is inclined to think that Dr. McCosh used his own exalted soul rather than that of the composite man in arriving at such a conclusion. With a man of his high character, it may be possible to

judge of his own motives and actions first, but with those of us who stand on the average moral plane, the reverse process is apt to be the one adopted. We are much more apt to apply the moral test first to the actions of others than to ourselves. There are so many passions and desires at play within our own breasts, and these exercise such an influence over the conscience, that in the average man or woman it is apt to lose some of its primal energy, and in some cases to go well-nigh to sleep. But the moral judgment never slumbers with regard to the conduct of our neighbors. It is a matter of every-day experience with most of us that motives which pass unchallenged in our own secret souls meet with our severest criticism when they are manifested in another. We do *not*, therefore, judge of the wrongness of his acts or motives by reasoning that such an act or motive would be wrong in us; but from the fact that selfishness does not influence our moral judgment when it is *his* act that is under contemplation. We are prepared to compare it, not with our own actions (which would in most cases *excuse* his folly), but with the intuitive standard in our soul, and this condemns him.

Our Judgment of Others applied to Self.—This principle may be utilized to excellent advantage in quickening the conscience when it has been lulled into a half-unconscious state, and here is the practical part of this discussion. We do not from our horror of our own imperfections turn to contemplate the sins of others; but, on the contrary, our judgments of the sinfulness of certain acts in others may be so presented to us as to cause us to reflect on our own faults, and put a check on our own evil passions, appetites, desires, etc.

Thus, take Nathan's parable of the ewe lamb, and note its effect on the mind and character of David, as recorded in the twelfth chapter of II. Samuel.

David had been guilty of the most horrible of sins, it will be remembered. In order to secure to himself Uriah's wife, he had caused Joab to place that worthy man in the front rank of the battle, where he might be slain; yet all this array of heinous sins does not trouble his stupefied conscience. But the Lord, who had made his soul, knew how to arouse the conscience of even this besotted murderer:

"And the Lord sent Nathan unto David. And he came unto him and said unto him: There were two men in one city, the one rich and the other poor. The rich man had exceeding many flocks and herds: But the poor man had nothing, save one little ewe lamb, which he had bought and nourished up: and it grew up together with him, and with his children: it did eat of his own meat, and drank of his own cup, and lay in his bosom, and was unto him as a daughter.

"And there came a traveler unto the rich man, and he spared to take of his own flock and of his own herd, to dress for the wayfaring man that was come unto him; but took the poor man's lamb, and dressed it for the man that was come to him.

"And David's anger was greatly kindled against the man; and he said to Nathan: As the Lord liveth, the man that hath done this thing shall surely die; and he shall restore the lamb four-fold, because he did this thing, and because he had no pity.

"And Nathan said to David: *Thou art the man.* . . . Thou hast killed Uriah the Hittite with the sword, and hast taken his wife to be thy wife, and hast slain him with the sword of the children of Ammon. . . . *And David said unto Nathan, I have sinned against the Lord.*"

It will be observed that from that day onward David was a very different man. There are times in the lives of most of us when we need a Nathan to force home the truth to us, "Thou art the man!" through some such practical object lesson; and as the boy is the grown-up man in miniature, his conscience may often be quickened, and his course of life may be changed for the better, by pursuing just such methods still. The teacher who has tact may often by the telling of a story (a parable) induce pupils to

compare their own actions with the actions they are so free to pass judgment on in others, *and so condemn themselves*. If the teacher can succeed in doing this, it is efficient moral training—about all that any one can accomplish so far as working reformation is concerned. The simple administration of punishment, without leading the pupil to feel any real sorrow or sense of shame for his offence, may be sometimes necessary for the good order of the school, but it produces no lasting effect upon his *own* character. If he is sorry, it is that he has been caught, and not that he is guilty.

It has become fashionable among certain classes of teachers to speak contemptuously of all moralizing. We hear it called “The goody-goody style of teaching morals,” “Canting,” etc. No doubt it may be overdone, or be injudiciously applied, but if applied as above suggested, when the occasion demands it, it becomes a potent force in the moral training of the young, and the teacher who neglects it on proper occasions falls short in an important duty.

ANALYSIS OF CHAPTER XII.

The moral faculties defined as a whole.

The knowledge of abstract moral right and wrong shown to be intuitive.

But this may not be applied to special cases without an act of judgment.

This judgment liable to error.

The faculty which makes this comparison and renders judgment is conscience.

The conscience illustrated, 1st, From the merchant's decision as to proper rate of profits; 2d, As to when “to steal is base.” These show that conscience may prompt a wrong act.

For this reason two disputants may both be perfectly conscientious.

The wrong that may be done a child by requiring him to do what he believes to be wrong.

What the teacher should first do.

The impropriety of commanding a pupil to turn informer in regard to trivial matters.

When the teacher is justified in calling pupils as witnesses.

Our moral judgments are exercised on the acts of others.

Dr. McCosh's statement shown not to apply to ordinary people.

Why we see faults of others more readily than our own.

We are not led to see the sins of others from the contemplation of our short-comings, but by comparing them with our intuitive conception of moral right.

How, on the contrary, our judgment of the follies of others may be utilized in convicting ourselves.

Illustrated by Nathan's parable. How to apply this in teaching.

Why this affords the more valuable kind of moral training.

Those who speak contemptuously of moralizing, and what they call it.

It is useful in its proper time and place.

SUPPLEMENTARY QUESTIONS.

Does the person who seems to have little or no appreciation of the immorality of his own acts hold others accountable for the violation of honesty, truthfulness, etc., etc.? What does this fact show?

Explain the moral significance of the statement that "there is honor among thieves."

Can a person who has no judgment be properly said to have a conscience?

Is such a person morally responsible for his actions?

As a matter of fact, is he held legally responsible?

Are people of "sane mind" equally responsible for their conduct in a moral sense? (Compare your answer with Matthew xxv. 15; Luke xix. 12.)

Should the fact be impressed upon the graduating classes of our schools that they have higher moral responsibilities than have those who have not enjoyed their privileges? If so, on what grounds?

Is it true that a teacher has no higher moral responsibility than good people generally have? Why, or why not?

Is it true, in a moral sense, that "it makes no difference what a man believes so long as he is sincere"? Why, or why not?

Is a man morally responsible for his conduct while intoxicated? Do you think this fact should be impressed upon the minds of the young?

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Can two disputants both be conscientious in regard to their positions ?
Can they both be right ? Explain your statement.

Should tale-bearing be encouraged by the teacher with reference to
the conduct of pupils ? Why, or why not ? Are there any exceptional
cases, and if so, what are some of them ?

Give an illustration of the practical application of Nathan's parable
in school management.

CHAPTER XIII.

THE MORAL FACULTIES AND THEIR CULTIVATION— CONTINUED.

IT was shown in the last chapter that the mind intuitively recognizes the reality of abstract goodness, rightness, justice, etc.; that the soul determines the rightness of a thing, and consequently the oughtness of its course of action in regard to it, by comparing it with the inborn intuitive standard; and that the faculty which makes this comparison and consequent decision is Conscience. It was held that while the soul's intuitive standard is infallible, the comparison of any particular motive or line of conduct with this standard is as liable to error as is any other decision of the judgment, and that therefore the Conscience may, and often does, lead us into error—that is, into doing things or pursuing lines of action that may work injustice to others, or violate the laws of God, and are therefore in themselves morally wrong. The Conscience is thus seen to be not an infallible guide; but as it is the only guide we have in determining the oughtness of a course of conduct, we must follow it or do violence to our whole moral nature.

It was also held that for this reason the child should not be required to do any thing that violates his conscience, unless it is certain that the greatest good to the greatest number absolutely requires that this be done; and that, therefore, it is an imperative duty, before requiring a pupil to perform any act of this kind, to use all reasonable means to persuade him that the thing he hesi-

tates to do is right, since, if the teacher succeeds in thus persuading him, his conscience will not trouble him in the doing of the act, and his moral nature will not, therefore, suffer violence.

Moral and Intellectual Culture Interdependent.—From the foregoing it is evident that intellectual discipline must of necessity be right in line with moral education. The conscience makes its decision on the result of a judgment whose accuracy will be reliable, or unreliable, in proportion as the judging power of the mind is strong or feeble. Intellectual education—especially such intellectual education as develops the knowing and reasoning powers—must, therefore, be conducive to morality. It enables the soul to discover whether or not any proposed course of action conforms to its inborn model of moral rightness, and thus, in the most direct manner possible, it assists the conscience in determining the oughtness of the case.

And yet there are many most excellent people who have actually been led to believe that intellectual culture is a dangerous thing; for this statement has been so often made by the thoughtless that even many of the ordinarily thoughtful have accepted it, without taking the trouble to investigate its truth, and thus discover the fallacy that lies so near its surface. It is undoubtedly true that we sometimes educate a rogue, but it is a hundred times as often true that the education given makes the undesirableness of a dishonest or immoral life so evident that the rogue that would have been becomes a useful member of society, and that the naturally lewd pursues the paths of virtue.

The Will.—But above our intuitive knowledge of abstract rightness, above our judgments, and above the decisions of the conscience regarding our duty in any given case, there sits enthroned the regal power of CHOICE. It is the experience of every one that when the other

moral faculties have arrived at and rendered their decision, that we ought or ought not to do a given thing, we still have the power of deciding whether to do or not to do. This autocrat, this Czar of all the Faculties, is called the WILL.

The Will is supreme ruler in our mental and moral kingdoms—the Commander-in-Chief of our Army and Navy, and even the Head of our Church. The conscience is his moral Attorney-General, ever ready with advice, couched in language most imperative, but if he chances to be in a wayward mood, as is too often the case with most of us, he disregards all this, and orders the reverse thing done! The thing *is* therefore done, but conscience still exercises its high prerogative of judging between this decision and its faithful standard, and then the whole nature of that complex organism we call our being is distressed.

That the Will is, in one sense, free to act, in spite of Conscience and of Reason, is within the consciousness of every reflecting mind; but that it is very greatly restrained, or constrained, by judgment, conscience, motives, passions, or desires, is equally apparent. In the first sense, the Will may be said to be free; while in the second, it may be under such restraint or constraint of the other faculties as practically to be said to be in subjection to them. In so far as it serves to control our evil passions and desires, it is evidently a power for good; but in so far as it yields to these, and gives them license to run riot in the soul, it is a power for evil.

The ideally moral man is the one whose judgment is such that it invariably enables his conscience to discover the moral rightness or the moral wrongness of a course of action, and whose Will as invariably yields to the promptings of his conscience with reference to his course

of action in regard to it. Such a man will keep all his baser passions and desires in complete subjection; for his judgment will exhibit the true character of each of these to his conscience; which, upon comparing with the soul's intuitive moral ideals, it instantly pronounces wrong, and advises the Will as to the proper course of action to pursue. The Will, conscious of the fact that this advice ought to be followed, yields prompt obedience, and the man walks on—a MAN.

There is much more that might be said with reference to the power and limitations of the Will, but space forbids. The teacher who would pursue the subject further is referred to any standard work on psychology, moral philosophy, or metaphysics. The same may be said with reference to nearly all the other moral or mental faculties. As stated at the outset, this is not designed to be a treatise on psychology.

Morality best learned by Practice.—After all, the most practical way to teach morals in our schools is to set the pupils to the practicing of practical morality. It has been so often affirmed that we learn to do by doing that the statement is in danger of losing its potential energy; but here is a case where we not only learn to do by doing, but learn to be by being. By being led in the pleasant paths of virtue, day by day, our feet become accustomed to the way, and follow it as much from habit as from choice, and thus, from being in these pleasant paths from day to day, and week to week, and month to month, we are prone to linger longer, and return again—and thus we learn to *be* from *being* moral.

There are many auxiliaries which the teacher can employ in moral training, and these, as far as possible, he should adopt. Whatever tends to elevate, refine, and spiritualize, is directly in this line. The good, the true,

and the beautiful are so closely interwoven in the warp and woof of the soul's wedding garment that the absence of the one is apt to leave the others threadbare.

The influence which the beauty of the landscape, the glory of the sunset, the grandeur of the billows exerts over the moral nature must be apparent to even the most sluggish soul; and in their contemplation one's better self is apt to gain the mastery. Under such influences it is easier to be good.

Let our teachers ever bear this principle in mind, for it applies as well inside as outside of the school-room. Beauty, order, system, ornamentation, decoration, neatness—all these are moral agencies, while cleanliness is proverbially next of kin to godliness. A cheerful spirit and a dingy, dusty, cobwebbed, unswept school-room are as incongruous as are the songs of birds with a dreary, drizzly morning.

Given such inside decorations and outside ornamentation in harmony, with the school-house perched on a desolate, wind-swept hill, donated for educational purposes because the soil is so barren that nothing but mullein-stalks will grow upon it ; with nothing to greet the eyes of the little ones save dreariness and desolation multiplied; with no hum of bees, no song of birds, no sound of whispering leaves, no any thing to greet the ear, unless it be the croak of the ill-omened crow, the harsh gratings of the sun-scorched mullein-stalks, or the wailing of the mindless wind —given such surroundings and associations as these from year to year, it is safe to predict that the souls which have been thus habitually subjected to their influence will take on and reflect something of the general bleakness, and harshness, and desolation.

Music as a Moral Agent.—Another powerful auxiliary in training children for the better life is music. It is the

natural out-flow of a joyous heart, as may be seen by any who will study bird-life in its happiest surroundings. Not only is this true, but such is the magic of its power that it acts upon the souls of all who fall beneath its soothing sway and engenders in their hearts something of the ecstasy that gave it birth within the singer's soul. When exercised on proper themes, it appeals directly to the loftier emotions, and thus becomes a potent force, impressing gratitude, and love, and lofty patriotism.

The teacher should, however, see that it *is* exercised on proper themes. It is not held that all our songs should be of a serious nature, but it is maintained that they should never be allowed to degenerate into the frivolous, silly nonsense so often heard in schools. Especially should we never encourage or permit the singing of those songs designed to burlesque and ridicule the higher aspirations of the soul.

Teaching Morality by Example.—But most of all, morality is impressed by the object lessons of the teacher's daily life and mien. When bitter fountains produce sweet water, when corrupt trees yield nutritious fruits, when men gather grapes from thorns and figs from thistles, then, and not until then, may we expect temperance impressed by the intemperate, honesty by the dishonest, chastity by the unchaste, reverence for God and holy things by the profane and the irreverent.

Standing face to face with such responsibilities, the strongest-hearted teacher well may tremble and ask the question, "Who can stand within His holy place?" But as an echo from the soul's profoundest depths comes back the answer from the lips of him who uttered it so many centuries ago: "He that hath clean hands and a pure heart."

ANALYSIS OF CHAPTER XIII.

RECAPITULATION OF PROMINENT POINTS IN CHAPTER XII.

Intuitive conception of moral right.

Comparison of proposed lines of conduct with this infallible standard.

DECISION OF CONSCIENCE.

The judgment, and consequent decision of conscience, may be erroneous, thus leading us to do a wrong act conscientiously. But, as we have no other guide, we must follow conscience or do violence to our natures.

For this reason, the child should be shown, if possible, that a distasteful task, or duty, is right, before requiring him to do it.

From the foregoing, it is shown that intellectual education is a valuable auxiliary to moral training.

The case summed up and restated.

Why some excellent people believe intellectual training dangerous.

For each person educated to be a rogue, many are trained to be good citizens, and the lewd are drawn into the more inviting paths of virtue.

THE POWER BACK OF ALL THE OTHER MORAL FACULTIES—THE WILL.

The commander-in-chief of our army and navy; the head of our church, so to speak.

It may overrule Conscience and Judgment, and is in this sense free. But it may be so greatly influenced by Conscience, Judgment, Motives, Passions, Desires, etc., as to be said to be in subjection to them.

When it is a power for good and when a power for evil.

The ideally moral man defined and illustrated.

The limited scope of this book, and where the teacher must look for further light.

We not only learn to do by doing, but in the moral sphere *we learn to be by being.*

How we learn to practise morality from habit as well as from choice.

AUXILIARIES WHICH THE TEACHER MAY EMPLOY IN MORAL TRAINING.

The good, the true, the beautiful, interwoven in the warp and woof of the soul's wedding garment.

The influence of the beauty of the landscape, etc.

This applies as well inside of the school-room as outside. Illustrated. The picture of the forbidding school-house on a desolate hill, with its

dreary play-ground, and the influence this has on the character of those subjected to it from year to year.

The influence of music.

It should be exercised on proper themes—gratitude, love, patriotism, etc.

It should never be used to inculcate frivolous ideas or to burlesque the nobler sentiments of the soul.

The object lesson of a strictly moral life on the teacher's part. This fact emphasized.

Who may stand within this holy place?

SUPPLEMENTARY QUESTIONS.

Does the will exercise control over the action of the perceptive faculties? The concepitive faculties? The cognitive faculties? The cogitative faculties? Explain your statement.

Would it be possible for the will to prevent a man learning anything whatever? Explain your statement.

Is it possible for the will to prevent the conscience from acting and reprobating it?

What is meant by "breaking a child's will"?

As commonly understood, is it right or wrong to "break a child's will"? Explain your statement.

Mention some other school-room aids to the practice and inculcation of practical morality, aside from those given in the text.

What is your opinion of the practical effects of the self-reporting system? The principle of trusting entirely to pupil's honor during examinations? Of giving credit in the pupil's class standing for "work done out of school"?

Can you show that religious convictions are likely to influence the will in deciding in accordance with the dictates of conscience?

HISTORY AND SCIENCE OF EDUCATION.

PART II.

CHAPTER I.

A GLANCE AT THE ANTEDILUVIAN WORLD, THE IMPORTANCE OF WRITING AS AN EDUCATIONAL FACTOR, WITH A SKETCH OF CHALDEAN, BABYLONIAN, AND ASSYRIAN EDUCATION.

FEW, if any, studies ought to be of deeper interest to the progressive and conscientious teacher than the History of Education. He ought to know what systems were in use in by-gone ages, and he should study their influence upon the nations that employed them.

He should be familiar, too, with the innovations of more modern times, and should retain such and only such as have been weighed in the balance of experience and found good.

Teachers should especially avoid announcing to the world as new discoveries methods and systems which are as venerable as the hills, making themselves as ridiculous as would be the inventor who should now announce as a new discovery an atmospheric engine; or the mathematician who should publish as an original discovery the astonishing fact that the square described on the hypothenuse of a right-angled triangle is equivalent to the sum of the squares on the other two sides, or the geographer who should just discover that the earth is a sphere.

The Antediluvian World.—The question, What was the intellectual condition of mankind in antediluvian times? can only be imperfectly answered from occasional glimpses caught from the lifting of the curtain by the sacred historian. It is difficult to agree with those who would have us believe that all mankind developed from a state of nature but little in advance of the brute creation.

If our first parents were created in the image of God, surely it was not in a physical but in an intellectual and moral sense; and they are represented at the completion of the biblical creation as intelligent, reasoning creatures, capable of holding conversation with each other and acknowledging entire obligation and obedience to their Creator.

But until men had multiplied upon the earth, it is evident that any thing in the nature of schools would be impracticable. Doubtless, children were taught by their parents what their duty was to God and to each other; and it is highly probable that the lessons derived from those terrible examples of disobedience, of covetousness, and of anger which had brought such sorrow upon the race, and had doubly degraded a member of that primitive community, making him a fugitive and a vagabond on the earth, were strongly impressed upon the minds of the young, and it is, therefore, highly probable that moral instruction antedates all other.

But toil and necessity, ever the mother of invention and improvement, drove the earliest heirs of these heaven-given blessings in disguise to provide for their physical comfort; and so we find that Cain was not only a tiller of the ground, but that after being driven by the Divine displeasure into that mysterious land eastward from Eden, he also builded a city for the habitation of his children, and named it with pardonable pride after his first-born son, Enoch. Doubtless the architecture of this first city was of the rudest

type; but we learn that Tubal-Cain, in the seventh generation from Adam, while that patriarch still walked the earth, "was an instructor of every artificer in brass and iron;" and more than this, that Jubal, the half-brother of Tubal-Cain, "was the father of all such as handle the harp and the organ."

Thus we see that in the earliest twilight of the race they had already made such advance in material civilization as to become artificers in brass and iron, and that—which is still more interesting—they had so far advanced intellectually as to invent the harp and the organ, and cultivate music, among the most refining of all the inventions of the race.

Writing an Intellectual First Meridian.—There is no evidence, however, that the use of writing was known to the antediluvian world. It was probably long centuries after this, but still in the early twilight of the ages, that this, the greatest of arts, was developed, an art of such importance, in an educational sense, that it has become an intellectual prime meridian, a line which, in modern times, divides between the civilized and uncivilized among nations, and among individuals in enlightened communities is the boundary line beyond which stretches the dark realm of illiteracy.

When we speak of education, therefore, unless otherwise specified, it is always understood to have reference to acquirements in the use of written language, or in some science or branch of study learned principally through the use of books. An unlettered mechanic, for example, is never spoken of as an educated man, no matter how skillful he may be in his particular calling. Neither can we, in any sense, consider a wild Indian an educated man on account of his woodcraft, or his familiarity with the denizens of his native wilds.

The Chaldeans, Babylonians, and Assyrians.—It is probable that written language had its earliest origin in the valley of the Nile; but it is certain that in the fertile valleys formed by the Euphrates and the Tigris, at a time penetrating so far back into the dim vistas of the long ago that all efforts to give it definite date must be conjecture, an entirely independent system of writing had birth, and here, through the lapse of centuries, it grew to maturity, and developed a most wonderful civilization.* Here, too, for more than two thousand years, countless volumes, with their records of the throbbing life and thought of these well-nigh forgotten nations, have lain hidden from the sight of men, buried deep beneath the mounds of earth that are now the only marks of the sites of once mighty cities. It remained for the scholarship and ingenuity of the nineteenth century to unclasp these long-closed books, read their unfamiliar pages, and publish their wonderful revelations to the world.

Nimrod organized the Chaldeans and the various tribes occupying the lower part of the valley into a single, strong government, about 2300 B. C., and founded Babylon. Certain of these tribes emigrated further northward about 2000 B. C., and are afterward known as the Assyrians; in the thirteenth century B. C. they conquered their Chaldean, or Babylonian, neighbors to the south, and for the space of six hundred years the great Assyrian Empire ruled the valley, with Nineveh as its capital.

But in the eighth century B. C. the Babylonians regained

* Says Rawlinson, in his "Ancient Monarchies": "In Babylonia almost every branch of science made a beginning. She was the source to which the entire stream of Eastern civilization may be traced. It is scarcely too much to say that but for Babylon real civilization might not even yet have dawned upon the earth, and mankind might never have advanced beyond that spurious and false form of it which in Egypt, India, China, Japan, Mexico, and Peru contented the aspirations of the people."

independence, and finally, in 625 b. c. Nineveh fell, and with it all its palaces and temples, with their marvelous libraries and works of art. Babylon is now again made the capital, and we have what is known as the Later Babylonian Empire, until conquered by Cyrus the Great in 538 b. c.

Assyrian Books.—Yet through all these vicissitudes—though nations rose and fell, and the very sites of the great cities were forgotten—their books, written in the cuneiform characters on baked clay tablets, or delicately graven on cylinders, have been marvelously preserved from the hand of the destroyer, and from their pages we are now enabled to read the wonderful records of the old Chaldean times.

From the buried ruins of the palace of Asshurbanipal, one of the Assyrian kings, the following inscription has been unearthed :

“ Palace of Asshurbanipal, King of the world, King of Assyria, to whom the god Nebo, and the goddess Tashmit, have given ears to hear and eyes to see what is the foundation of government. They have revealed to the Kings, my predecessors, this cuneiform writing, the manifestation of the God Nebo, the god of supreme intelligence. I have written it upon tablets; I have signed it; I have placed it in my palace, for the instruction of my subjects.”

Many of the books in this library were copies of Babylonian books of still greater antiquity, and these were doubtless, in many cases, copies of still older Chaldean records. One of these copied books gives an account of the Flood, written hundreds of years before the days of Moses. There have been found in this library works on mathematics, astronomy, astrology, geography, history, grammar, law, and the natural sciences. Lenormant says of these last-named works : “ We may well be astonished to learn that the Assyrians already had invented a scientific nomenclature similar in principle to that of Linnæus.”

The animal kingdom was scientifically divided and subdivided into families, genera, and species. Their astronomy was not a mere catalogue of the stars, but was of so high an order that they had calculated the length of the sidereal year more accurately than could be done by most professors of astronomy even in our own day. This has led many to believe that they must have used telescopes, and as a further evidence of this it should be stated that a glass lens has been found among the débris of one of these buried cities. The fact, too, that many of the tiny cylinders found among the ruins are engraved in characters so small that it requires the use of a microscope to *read* them, is strong evidence that such instruments must have been used by those whose hands traced these delicate lines more than a thousand years before the use of letters was even known in ancient Greece.

Everything seems to have been done systematically in those remote ages, and on a tablet found in Asshurbanipal's library is a notice to visitors that they must give the librarian the number of the book they wanted, when it would be brought them. This indicates that it was a *public* library, and, what is still more interesting, that the public were able to read its books.

A people having advanced to so high a degree of civilization as this could not have been without schools and colleges, and we should scarcely feel astonished if tablets should be unearthed containing the minutes of the Babylonian Teachers' Normal Institute or of the Nineveh County Educational Association !

Babylonian University.—We catch a glimpse of the educational system of the later Babylonian Empire from the account given in the first chapter of the Book of Daniel. This record discloses the fact that there then existed something like a State University at the capital, to which even

the captive Israelites were eligible. The qualifications required for entrance were: to be "without blemish, well favored, skillful in all wisdom, cunning in knowledge, understanding science, and ability to stand in the King's palace." The course of instruction extended through three years, and the studies were "the learning and the tongue of the Chaldeans." The Chaldee must have been nearly as much of a dead language at that time as is the Greek and Latin in our own, so the course of study in the Babylonian University twenty-five centuries ago was very similar both in its nature and extent to the courses pursued in the higher institutions of the present day. Everything seems to have been provided by the State in this institution. Not only was instruction provided free of cost to the students, but they were even boarded at the King's (that is, the nation's) expense. More than this, we find that they were subjected to examinations, and at their final graduation they were examined by the King himself as to their "wisdom and understanding."

Neglect of Morals and Consequent Fall.—But notwithstanding the high degree of education which existed in these old-time nations, moral culture seems to have been utterly neglected, and many of their habits and customs became too abominable to be even mentioned. It is doubtless more than a coincidence that but five years before the fall and utter destruction of great Nineveh, with its walls a hundred feet in height, with its innumerable towers of defence, and with every luxury which art could devise, the terrible judgment recorded in the second chapter of Zephaniah was pronounced against her :

"And he will stretch out his hand against the North and destroy Assyria; and will make Nineveh a desolation and dry like a wilderness. And flocks shall lie down in the midst of her: all the beasts of the nations; both the cormorant and the bittern shall lodge in the upper lintels of it;

their voice shall sing in the windows; desolation shall be in the thresholds, for he shall uncover the cedar work. This is the rejoicing city that dwelt carelessly, that said in her heart, 'I am and there is none beside me.' How is she become a desolation, a place for beasts to lie down in!"

When Xenophon with his Ten Thousand marched over this region some two centuries later, so utterly had every vestige of the doomed city disappeared that no mention whatever is made of it! The judgment pronounced against Babylon, at that time said to be a city much larger than the London of the present, was, if possible, even more terrible than that of her northern sister, and has been quite as literally fulfilled.

"And Babylon, the glory of the kingdoms, the beauty of the Chaldees' excellency, shall be as when God overthrew Sodom and Gomorrah. It shall never be inhabited, neither shall it be dwelt in from generation to generation; neither shall the Arabian pitch tent there; neither shall the shepherds make their fold there; but wild beasts of the desert shall lie there and their houses shall be full of doleful creatures; and owls shall dwell there and satyrs shall dance there; and the wild beasts of the islands shall cry in their desolate houses and dragons in their pleasant places. And her time is near to come and her days shall not be prolonged!"

Something more than mere literary culture and scientific attainments is necessary for the perpetuity of a nation, and we will do well to heed the terrible lessons taught us here. If we permit the training of our youth to degenerate into intellectual culture only, and neglect utterly their morals; if we devote sacred things to unholy uses—in short, if we follow the example set us by these people whose land has long centuries since become an utter desolation, we need not expect that any exception will be made in our case, and it will some day require no Daniel to interpret the writing on our wall.

May it never be written of us in the future as one of our own great poets has written of these by-gone nations:

" Where empires towered that were not just,
Lo, the skulking wild-fox scratches in a little heap of dust ! "

ANALYSIS OF CHAPTER I.

Object and scope of Part II.

IMPORTANCE OF THE HISTORY OF EDUCATION TO THE TEACHER:
 (a) That we may study the influence of the various systems of education upon the peoples that employed them. (b) That the teacher may be able to retain the good and discard the bad. (c) That the teacher may not announce as new that which is ancient.

THE ANTEDILUVIAN WORLD: (a) Our source of information in regard to it. (b) Reasons for rejecting the theory that men have advanced from *a state of nature*. (c) Schools at first impracticable. (d) What the children were doubtless taught. (e) The great cause which drove them to intellectual development. (f) The first city. (g) The first artificer. (h) The invention of music. (i) What this implies.

THE INVENTION OF WRITING: (a) No evidence of it in the antediluvian world. (b) Where and when it had its birth. (c) What it divides between —among nations and among individuals. (d) What education means, as here used.

THE CHALDEANS, BABYLONIANS, AND ASSYRIANS: (a) Here an independent system of writing was invented and developed. (b) How the records have been preserved. (c) Historical sketch. (d) Description of their books. (e) Inscription on a palace, and library. (f) The antiquity of some of the books. (g) Nature of some of the books. (h) Wonderful extent of the knowledge of the people. (i) What this is thought to imply. (j) Evidence that the people could read. (k) Schools and colleges implied.

EDUCATIONAL SYSTEM IN THE LATER BABYLONIAN EMPIRE: (a) A university at the capital. (b) Who were eligible. (c) Qualifications for entrance. (d) The course of instruction. (e) Provided by the State. (f) The King the final examiner.

MORAL CULTURE NEGLECTED: (a) The state of morality abominable. (b) The judgment passed on Nineveh. (c) Its swift and terrible fulfillment. (d) The judgment pronounced against Babylon. (e) The lesson to be drawn from these.

SUPPLEMENTARY QUESTIONS.

The answers to these questions may be found in almost any good general history or encyclopaedia of recent date. It is earnestly recommended that teachers read carefully on as many of these topics as practicable, as this will lead to a much better understanding of many matters referred to in the text.]

What can you say of the Aryans and their dispersion?

Where were Babylon and Nineveh, and what can you say of their greatness?

What can you say of the nature of the cuneiform writing?

Give an account of the Behistun Inscription and its importance.

What can you say of the manners and customs of the Assyrians and Babylonians? Of their religion?

CHAPTER II.

EDUCATION, SYSTEMS OF INSTRUCTION, ETC., IN ANCIENT EGYPT, INDIA, AND CHINA.

Egypt.—We pass from the valley of the Euphrates and the Tigris to that other great oasis in the world-encircling desert—Egypt, that strange realm of the long ago, whose very name causes a sinking sensation in the heart, akin to that produced by the presence of death. It is the land of the mysterious, the abode of the weird, the empire of the dead ! Here, in the tombs of those who walked the streets of Thebes, of Memphis, of Heliopolis, four thousand years ago, have been wonderfully preserved from the hand and tooth of Time the records of those far-off days. And here, too, as in Assyria and Babylon, the key to those long-closed volumes has been found; and their pages are now read with almost as much precision as are ancient Greek and Sanscrit.

Origin of Geometry.—From the earliest dawn of history, the Nile, swollen high by months of rain, has annually inundated the Valley of Egypt. Rising in that dim land of darkness, whose secret is not yet fully known, even to the most daring traveler, and bearing in its turbid waters the rich alluvial soil from Ethiopia and the Soudan, it has made the desert to blossom like the rose. But the great river bore a richer boon by far to the dwellers in its valley than that of the fertile soil from distant Ethiopia; for, in its annual overflow, it washed away the boundary lines and landmarks from its valley, thus compelling the people to devise measures for their recovery, and for a more accurate sur-

vey or measurement of these fertile and valuable lands. Thus, stone by stone, was erected that grandest of monuments to Egyptian intellect, the science of geometry, a monument which shall stand when the time-enduring Sphinx shall have ceased her weird vigils, and when the proud, gigantic pyramids shall have crumbled into dust. The Egyptians were compelled *to think*, to reason closely, and so, being stirred by necessity to intellectual activity, they became for ages the most highly civilized nation on the globe.

Egyptian Education.—Though *caste* existed in Egypt from the earliest times, it does not seem to have debarred any very considerable part of the people from the privileges of at least the rudiments of an education, in which respect it contrasts most favorably with India, the other great stronghold of this system. Education was, however, both exoteric and esoteric—the former *outside*, practical, intended for the masses, to enable them to perform the ordinary duties of every-day life in the shops or on the marts; while the latter was *inside* and secret, destined to train a favored few for the priesthood, and other high positions in government or society, including army officers, professional men, judges, architects, literary men, and physicians.

The education of the common people included reading, the ordinary mode of writing, and the rudiments of arithmetic—the abacus being used in giving instruction in numbers on the banks of the Nile more than three thousand years ago. The children were also instructed in the trades or callings of their parents. It is not to be understood, however, that they were taught in *school*; that is a much more modern invention. The statement probably means nothing more than that the parents were required to train their children to habits of industry; and the system of *caste*

forbade that this industry should be in any other line than that of the father.

When we say that the children of the common people were granted the privilege of a rudimentary education, an exception must be made in the case of swine-herds, who seem to have been regarded as outcasts, not unlike the Pariahs of India. It is interesting to contrast the social position of men of this calling here with that of men of similar occupation just across the Mediterranean, where, in the days of Homer, we hear much about "the noble swine-herd." The Paraschites, or those who prepared the bodies of the dead for embalming, were also an outcast class, at whom to cast stones was the duty of every passer-by, if Ebers is to be credited.

The curriculum in the higher Egyptian schools seems to have been an extended one, including arithmetic, geometry, mensuration of land, astronomy, chemistry, architecture, sculpture, painting, music, morals and manners, and a system of medicine. The female children of the higher classes were eligible to this course, and many of them availed themselves of their privileges.

The following bit of criticism by an Egyptian teacher, of an effort at composition, has been found and translated. It will serve to show how very similar were the trials of teachers three or four thousand years ago to those of some at the present day:

"It is very unimportant what flows over thy tongue, for thy compositions are very confused. Thou tearest the words to tatters, just as it comes into thy mind. Thou dost not take pains to find out their force for thyself. If thou rushest wildly forward thou wilt not succeed. I have struck out for thee the end of thy composition, and I return to thee thy descriptions. It is a confused medley when one hears it; an uneducated person could not understand it. It is like a man from the lowlands speaking with a man from Elephantine."

Their teachers were required to lead strictly virtuous lives, and they were forbidden to eat and drink that which would make them gross and indolent. This was thought to be necessary, that similar habits might be inculcated in the young. But what else might be expected from a people four thousand years behind the times! Some estimate of the public ideal of life and its duties impressed by this system of training may be obtained from the following extract from the Book of the Dead, enclosed in every mummy-case, as the soul's defence before Osiris, in the other world:

"I have not been idle. I have not been intoxicated. I have not told secrets. I have not defrauded. I have not slandered. I have not caused tears. I have given food to the hungry, drink to the thirsty, and covering to the naked."

Let us hope that Osiris did not scrutinize too closely.

Schools of high grade are known to have been fostered at Thebes, Memphis, Heliopolis, and other cities, and it was doubtless in one of these that Moses became "learned in all the wisdom of the Egyptians, and mighty in words and in deeds," more than five hundred years before the siege of Troy. The Egyptian education was early borrowed by the Greeks, and after long centuries it returned, greatly improved by its foreign sojourn. Under the fostering care of the Ptolemies many schools were established in Alexandria and other cities of the Delta, and here were gathered students and philosophers from all the civilized world. Here, too, were collected libraries, such as can scarcely be rivaled even in these days of making many books.

But war, and bigotry, and oppression—ever the enemies of culture and wisdom—have done their work, and the glory of Egypt has long since departed from the Nile; but

until the waves of thought, here set in motion forty centuries ago, shall break upon the shores of Eternity, the glory of Egypt shall live.

India—Caste.—We have seen that in Egypt children were destined, as a general rule, to follow the callings of their parents, but to this there must have been many exceptions, since the monuments frequently show that men of distinction had risen from no parentage worthy of note. This would naturally follow in a land where the blessings of intellectual education were withheld from few, and where, in consequence, mental superiority would have a chance to make itself known; and, being known, it would take its proper place in that aristocracy to which even kings and emperors have in all lands bowed. But in India, to be born of low-caste parentage was to be condemned to a life of intellectual bondage from which escape was an absolute impossibility.

Of the low castes, there were first the *Sudras*, who were condemned to a life of servitude. But hard and cruel as was their fate, there was still a lower depth of human degradation and misery—that of the *Pariahs*, or outcasts. So scrupulously was all education withheld from these two castes that if by accident a Sudra or Pariah came in hearing of a Brahmin's voice while teaching, the poor wretch must instantly thrust his fingers in his ears and run as if for his life, and in case he actually heard any of the words of the Brahmin's lectures he was condemned to have boiling oil poured into his offending ears; and for a second offence he was condemned to certain death. The priest who should knowingly impart any instruction to one of these poor creatures was not only condemned to death, but to the most uncomfortable quarters in perdition afterward. Verily, ancient India would have been an earthly paradise to that class of Americans who so vehemently condemn the public

schools for "educating the 'lower classes' out of their sphere." It is difficult to listen with patience to these self-appointed American Brahmins, who having themselves shared the blessings of our free institutions, would deprive others of their God-given birthright, and condemn them to perpetual intellectual bondage. Let all such emigrate to India; America can bear their loss.

Hindoo Education.—The three higher Hindoo castes, the *Brahmins*, or priests, the *Warriors*, and the *Merchants*, were allowed the privileges of education; but here, as elsewhere in the ancient world, education was both exoteric and esoteric. The warriors and the merchants might be instructed in the former, which included the rudiments of arithmetic, language, science (so-called), poetry, philosophy, astronomy, history, popular religious doctrines, jurisprudence, and some slight knowledge of medicine. Their science was, however, of the absurdest nature; their history was about as reliable as, and quite similar to, that of the famous Baron Munchausen. They did not think it worth while to record any thing that was probable or even possible, since matters of this kind would not be interesting; so they filled their histories with the exploits of men a hundred thousand miles or so in height, and with breadth of shoulders to match. It is needless to remark here, parenthetically, that this class of historians is not yet quite extinct, even on this side of the Atlantic—especially when they write of wars and military chieftains. Their astronomy, too, was as fanciful as is a modern railroad map; while their medical knowledge was but little better than that now obtained by that class of illiterate adventurers among us who, after "residence" at a medical college for a few months, are licensed to butcher or poison their fellow men as fancy takes them.

The esoteric education of the Brahmins included, in ad-

dition to the above, higher mythology, the mysteries of their sacred shrines, mathematics, and astrology. Though the Hindoo science was generally worthless, its poetry was of a high order, and its metaphysical speculations were, upon the whole, about as profitable as such speculations have ever been. When they had learned to doubt all the evidences of the senses which God has implanted for their guidance, and when they had finally reached that sublime height of intellectual insanity which leads men to disbelieve in their own existence—they were then regarded as competent to guide their fellow-men in the stern duties of every-day life, duties as terribly real and earnest then as now. What wonder that under such instruction they became a nation of dreamers, and that they utterly neglected for so many long centuries to see with their eyes, and hear with their ears, those truths of nature which are so obvious that even the brute creation recognize them?

That their ethics was, however, of a high order, may be seen from the following quotations from the Laws of Manu, the standard of the ancient Brahmins :

“Devising means to appropriate the wealth of other men, resolving on any forbidden deed, and conceiving notions of atheism or materialism, are the three bad acts of the mind. Scurrilous language, falsehood, indiscriminate back-biting, and useless tattle, are the four bad acts of the tongue. . . . He whose firm understanding obtains a command over his words, a command over his thoughts, and a command over his whole body, may justly be called a triple commander. The man who exerts this triple self-command with respect to all animated creatures, wholly subduing both lust and wrath, shall by those means attain beatitude.”

And this, of a later date, from the Ethics of Buddhism :

“There are three sins of the body: 1. The taking of life—murder. 2. The taking of that which is not given—theft. 3. Impurity. There

are four sins of speech: 1. Lying. 2. Slander. 3. Abuse. 4. Unprofitable conversation. There are three sins of the mind: 1. Covetousness. 2. Malice. 3. Skepticism. There are also five other evils that are to be avoided: 1. The drinking of intoxicating liquors. 2. Gambling. 3. Idleness. 4. Improper associations. 5. The frequenting of places of amusement."

The education of woman, among the ancient Hindoos, was of such a nature as to fulfill to the highest degree the ideal of that class of modern writers who are alarmed lest she be educated out of a state of dependence on man, and thus lose something of her—well, of her traditional *viny* nature, as it were. The Brahmins gave her no opportunity to sacrifice any of her poetic charms in such an unwomanly way. They made it a great disgrace for her to learn to read; and when the "sturdy oak" to which she had so beautifully clung was stricken down, she was "encouraged" to attach her tendrils to the rough projections of his funeral pile, and display her charms and graces from its summit.

China.—We pass from India across the Himalaya Mountains, and find ourselves among the teeming millions of the Celestial Empire. Here we find conservatism crystallized. As the people are to-day, so they were ten centuries ago; and as they were then, so they were, substantially, in the days when blind old Homer wrote the *Odyssey* and the *Iliad*. Since the days of Con-fut-see (Confucius) they have deemed it sacrilege to advance beyond the precepts of that sage, and even he only compiled, at a time when Rome was still without an alphabet, the writings of those who had so long preceded him that their works had become well-nigh forgotten. But in spite of their iron-clad conservatism, the Chinese have stumbled upon some of the greatest discoveries of the civilized world. Here gunpowder and the use of firearms were known while all Europe was still

armed with the primitive bow and spear; and here, too, the printing-press was known and used at a time when such a thing had not been dreamed of in the West, and when but few even of the kings of nations could trace in the murky darkness of the times the characters of a written page.

Chinese Schools.—Schools have existed in China from time immemorial. A boy, in ancient times, was first given a course of home training, consisting of reverence for parents and ancestors, repeating precepts of morality, committing extracts from the Chi-King, counting to 10,000, and a careful drill in the proper use of his native language. At the age of five or six he was sent to school, where, upon entering, he was required to make obeisance first to Con-fut-see; and secondly, to the next greatest man, his teacher. The school exercises consisted mainly in writing the Chinese characters, practice in the fundamental principles of arithmetic, lessons in morals and manners, chanting odes from the Chi-King, and in the narrating and explanation of Chinese history by the teacher. Returning home, it is said the young heathen were required to salute, first, the domestic spirits; second, their ancestors; third, their parents; and, lastly, any strangers who might be present. It might be profitable to compare the deportment of these lads with many of their Christian fellow-urchins thirty or forty centuries later—but comparisons are odious. The course of instruction in the primary schools extended through from three to five years, according to the aptitude of the pupils, for in those days it had not yet been discovered that all minds may be made to fit the same mold, and thus be all carried through a long course of study in the same time.

These lower schools were supported by local authority rather than by the State at large, but it seems that most of the male children were permitted to attend. Female chil-

dren were, however, not admitted; but it is said that most of them were taught to read, write, and sing at home.

There was a higher course designed for the children of the nobles, the wealthy, and such of the children of the poor as had distinguished themselves in the common schools. In addition to this, there was a seminary in each large city, to which admission was gained through the governor. After a prescribed course of study, the graduates of these institutions were again examined; and if they sustained the severe ordeal they were permitted to enter the Imperial College at Pekin. Here, after a further three years' course of study, the students were again subjected to a still more severe examination, and the few who passed were then appointed to some office in the government. This was civil-service reform with a vengeance.

But long as was the Chinese course of study, it seems to have been well-nigh valueless, except in strengthening the memory. It contained little or no mathematics, beyond the rudiments of arithmetic; it included no language, except their mother tongue; its history was so interwoven with the fabulous as to render it worse than useless for all practical purposes; and its science was, for the most part, unworthy of the name. The course seems to have consisted mainly in the parrot-like committing to memory of long lists of meaningless names of sages and heroes, either real or apocryphal; and it is recorded that the child-like Ah Sin was as skillful then in blandly tucking away in his spacious sleeves astonishing quantities of things he did not understand as was his illustrious namesake of more modern times when examined by William Nye. One of those ancient keys is now preserved in the library of Harvard University, doubtless as a warning to the faculty that if they put it in their curriculum, which is to be blindly memorized, they need not be surprised if Young America resorts

to the same dark ways, and eke the same vain tricks, as did his almond-eyed brother of the "Middle Kingdom" two or three thousand years ago.

ANALYSIS OF CHAPTER II.

EDUCATION, SCHOOLS, ETC., IN EGYPT: (a) The associations that cling about its very name. (b) How the records have been preserved. (c) The key to the Egyptian writing. (d) The influence of the Nile on the country. (e) On the intellectual activity of the people—Geometry. (f) Caste. (g) Contrast with India. (h) Exoteric education. (i) Esoteric education. (j) The education of the common people. (k) Industrial education. (l) The excluded classes. (m) What the education of the higher classes included. (n) Females eligible. (o) Specimen of a teacher's criticism. (p) The exemplary life of the teacher. (q) The high ideal of life and its duties, illustrated by the soul's defence before Osiris. (r) Where the schools of high grade were established. (s) Moses' education. (t) Egyptian education borrowed by the Greeks and fostered by the later Greek Emperors of Egypt. (u) The cause of the decline of Egypt in glory. (v) Though dead, it still lives.

INDIA, AND ITS EDUCATIONAL INSTITUTIONS: (a) The influence of caste—Compared with that of Egypt. (1) Sudras. (2) Pariahs.—Reflection regarding American Brahmins. (3) The three higher castes. (4) The Warriors and Merchants received exoteric education.—What it included, and its character. (5) The Brahmins received esoteric education—What this was. (b) The poetry, metaphysics, etc., of the Hindoos. (c) The general influence of their metaphysics on the character of the thought of the people. (d) Their ethics: (1) From the Laws of Manu. (2) From the Ethics of Buddhism. (e) The education of woman among the ancient Hindoos.

CHINA, AND ITS EDUCATIONAL INSTITUTIONS: (a) Conservatism crystallized. (b) The influence of Confucius—the nature and antiquity of his work. (c) What they stumbled upon in spite of this. (d) Antiquity and nature of their schools. (1) Home training. (2) School training. (3) Comparisons are "odious." (4) The time required not a Procrustean bed. (5) Primary schools supported by local authority. (6) Females not admitted, but taught at home. (e) A higher course, for the nobles, etc. (f) A seminary in each large city. (g) The Im-

perial College. (1) The course, and the nature of the studies pursued. (2) The destiny of the graduate—Civil-service reform. (3) Secret keys sometimes used in the examinations—Reflection.

SUPPLEMENTARY QUESTIONS.

What can you say of the hieroglyphic writing ?
What can you say of papyrus and its preparation and use ?
Describe the Book of the Dead.
What can you say of the monuments and art of the Egyptians ?
Describe their religion.
What can you say of their art of embalming ?
Give an account of the Rosetta Stone and its importance.
What can you say of the Sanscrit language and literature ?
What is Brahmanism ? Buddhism ?
Describe the Hindoo mind.
What can you say of Confucianism ?

CHAPTER III.

THE EDUCATION AND SCHOOLS OF ANCIENT GREECE.

As the solar light and heat received upon the earth untold centuries ago have been treasured up in beds of carbon, and are now resolved back into their original forms, or transmuted into electricity, magnetism, vital force, or other forms of physical energy, so the intellectual warmth and light of by-gone ages are treasured up in books, and by a sort of conservation of mental energy are now made to reappear in waves of thought, transmuted in their passage through the human brain into a myriad of varying forms. The poetry, the philosophy, the ethics, the mythology, the science, and the art of ancient Greece shine out from nearly every modern classic page; often, indeed, transformed in their passage through the later author's brain into new shades or forms of thought, but still easily traceable to their Hellenic home.

There was little among the Greeks, during the Heroic Age, to correspond with our ideas of a school, unless the oral transmitting from generation to generation of the immortal poems of Homer, and the less stirring but more practical works of Hesiod, may be so regarded. There were also gatherings for the purpose of chanting the Orphic hymns, and it is said that some instruction was given on the subject of medicine, but this last was probably nothing more than the imparting of certain hygienic principles. The legend that Homer in his earlier days was a school-teacher probably has no foundation in fact, since it is extremely doubt-

ful whether Cadmus had then yet arrived with his magic letters from the east-land.

When we speak of Greece, at least after the dawn of authentic history, 776 b. c., it is not of one nation under a single government, with the same institutions and habits of life and thought. It would be difficult to conceive of any two civilized peoples more unlike than were the Spartans and the Athenians. The educational system of the former was harsh, brutalizing, and soulless, while that of the latter was refining, elevating, and spiritualizing. Let us glance first at Sparta.

Spartan Education.—Lycurgus, having incurred the ill-will of the Queen of Sparta, absented himself for many years, during which time he traveled in foreign lands and studied the laws, the manners, the customs, and the educational systems of the then most civilized nations of the earth. Returning home, he was, on account of his superior intelligence, looked to for guidance in raising Sparta from the state of anarchy into which she had sunk. He thereupon prepared the *Rhetra*, a system of regulations by which his countrymen were afterward guided.

By this system a child was regarded, not as belonging to its parents, but to the state. It was to be inspected at its birth, and if not strong and healthy it was to be destroyed. At the age of seven such male children as were deemed worth the raising were consigned to the care of public teachers. They were allowed only the most scanty fare, not enough to sustain life unless they could supplement it by hunting or stealing. If the theft was discovered it was most severely punished; but if not, it was regarded as a bit of commendable enterprise. The youth who was constantly held up to the Spartan boys for emulation was one who, having stolen a fox and hidden it under his cloak, was accused of the theft, but stoutly denied it, and submitted to

cruel scourging without a groan. During all this time Reynard was vigorously gnawing out the young hero's vitals, and he finally fell dead without acknowledging that he had been so clumsy in his stealing as to be detected.

The physical education of the boy was of the severest kind, and that the future soldier might be trained to bear hardships unquestioningly, he was flogged in the most barbarous fashion, sometimes even dying under the torture, which he was expected to bear without a sign of pain. The intellectual education afforded was very meager, including, in addition to reading and writing, only the elements of arithmetic and a drill in brevity in expressing thought, the Spartans considering it a sin to use two words where one would answer. From this last feature of their system we have our word *laconic*, from Laconia, the province of which Sparta was the capital.

The young Spartans were said to be instructed in truthfulness, the government of their passions, and reverence for the gods. But how impressive "lessons of truthfulness" would be with the hero of the fox story constantly in mind, the reader may judge. Possibly he may himself be giving instruction in morals and manners under circumstances equally embarrassing. The young Spartan was taught "the government of his passions" by encouraging him to prowl the country at night for the purpose of murdering any of the wretched Helots (state slaves) who might fail in his merciless way! "Reverence for the gods" he doubtless was taught, for "as their laws were, so their gods were."

The Spartan girl was afforded privileges of education, both physical and intellectual, similar to those enjoyed by her brothers. But it was an education which ignored all ideas of refinement, culture, and family ties. The result may be easily imagined. "The Spartan mother," on whom

so much sentiment has been wasted, was in reality but little better than an Amazon, a rough, coarse creature, without natural affection, and whose fists were even more to be feared than was her tongue.

Reared without the tender and endearing influences of home and mother, the boy developed into a creature without pity, filial affection, or any other virtue save loyalty to Sparta. Such are some of the natural fruits of a system of education which ignores all culture and refinement, and which invades the sacred functions of the home. To Sparta can be attributed little that went to make Greece great. It has been truly said: "*There was no Spartan sculptor, no Laconian painter, no Lacedemonian poet!*"

Athenian Education.—But we turn to Athens—a more inspiring field. About 638 b. c. Solon modified their laws, reorganized civil society, and, in the judgment of historians, must have established their schools, as it is difficult otherwise to account for the excellence of those in vogue in his day. The Athenian educational system included both intellectual and physical culture, and every citizen was required to see that his son was taught to read and to swim. He was also obliged to rear him to some useful occupation.

The child was left under the exclusive care of his parents until he attained the age of seven, when he was sent to the primary schools, accompanied by a faithful slave or other attendant. This leader of the boy was called a *pedagogue*; he was not, however, in any sense a leader of the child's intellectual steps, as neither he nor any one else, except the relatives of the teacher, was permitted to enter the school on penalty of death! There were, however, some thorns in the roses with which the Athenian teacher's path was strewn. The school day began with the rising of the sun, and only closed with its setting. Disci-

pline was well laid on with the birch when necessity seemed to require it, which is said to have been pretty often.

The schools were all under the supervision of the state, and were styled elementary and higher. In the former were taught the alphabet, spelling, reading, writing, and probably the elements of arithmetic. In the higher schools the pupils were required to commit and recite, or declaim, the finest passages of the Greek poets and historians, the teacher explaining their meaning and emphasizing their most important truths. He also gave instruction in poetical composition, penmanship, elocution, music, eloquence, and the principles of the fine arts. Parents were allowed to direct the order in which the various studies of the higher course should be taken up. But this must, from the very nature of the case, have been subject to certain limitations, unless human nature has undergone a radical change in these later days!

When the youth reached "manhood"—sixteen years—he entered a probationary stage, during which he might study, if he wished, ethics, dialectics, politics, and mythology. At eighteen he was enrolled in the list of citizens, and after two years of public service he was permitted to devote his whole after-life to study, if he were so inclined. The number who availed themselves of this privilege at a later date was not few, and it is to them that Greece owes most of her greatness. It was evident that only those whose time was not otherwise occupied could thus devote their lives to study, and it is an interesting fact that our word *school* is derived from the Greek word *schole*—meaning *leisure*.

The poor and the slaves were not instructed, nor were the females, except the *heteræ*—those intended for lives of doubtful virtue—that they might be the more attractive! A system similar to this seems to have existed in ancient

Japan, and, if a later writer may be credited, it exists in China at the present day.

Socrates.—It was not until the time of Socrates and Plato that Greece's educational sun reached its meridian glory. About the middle of the fifth century before Christ a most unprepossessing figure might have been seen sitting in the public places or walking about the streets of Athens, questioning all who would listen to him. He kept no school himself, but few men's teachings have exerted so wide an influence. The following description would apply to almost any day's experience of that wonderful teacher for more than thirty years:

"Gradually the crowd gathered round him. At first he spoke of the tanners, and the smiths, and the drovers, who were plying their trades about him, and they shouted with laughter as he poured forth his homely jokes. But soon the magic charm of his voice made itself felt. The peculiar sweetness of its tone had an effect which even the thunder of Pericles failed to produce. The laughter ceased; the crowd thickened; the gay youth, whom nothing else could tame, stood transfixed and awe-struck in his presence; there was a solemn thrill of words, such as his hearers could compare to nothing but the mysterious sensation produced by the clash of drum and cymbal in the worship of the great mother of the gods—the head swam, the heart leaped at the sound, tears rushed from their eyes, and they felt that unless they tore themselves away from that fascinated circle they should sit down at his feet and grow old in listening to the marvelous music of this second Marsyas."

He has left us no writings, but his philosophy and his methods of teaching have been faithfully transmitted by some of his devout and renowned disciples. The Socratic method of teaching may be illustrated by the following example:

Meno.—Socrates, we come to you feeling strong and wise; we leave you feeling helpless and ignorant. Why is this?

Socrates.—I will show you (calling up a young Greek and making a line in the sand). Boy, how long is this line? —

Boy.—It is a foot long, sir.

Soc.—How long is this line? —

Boy.—It is two feet long, sir.

Soc.—How much larger would be the square constructed on the second line than on the first line?

Boy.—It would be twice as large, sir.

Under the direction of the boy, Socrates constructs two squares in the sand, thus:



Soc.—How much larger than the first did you say the second square would be?

Boy.—I said it would be twice as large.

Soc.—But how much larger is it?

Boy.—It is four times as large.

Soc.—Thank you, my boy, you may go. Meno, that boy came to me full of confidence, thinking himself wise. I told him nothing. By a few simple questions I led him to see his errors and discover the truth. Though really wiser, he goes away feeling humbled.

This is the method which practical teachers of to-day use—leading, by judicious questions, the young learner to discover his own errors, notwithstanding the discovery by some of our new lights, *that the pupil should never be questioned.*

Plato was one of Socrates' pupils. After sitting for ten years at the feet of that sage, he traveled abroad, and after his return expounded in the gardens of Academia the great principles of his master, with such improvements as his own genius had added. In his "Republic" and his "Laws" he gives us his theory of education. He lays down laws for distinguishing between good and bad teachers, and urges the state to use the utmost care in their selection. Though he believed in physical training, he very greatly modified the

Spartan ideas of exercise and diet. He would soften the character by music, in its Greek sense—that is, by the different kinds of poetry and such of the arts and sciences as were supposed to be presided over by the nine muses (history, lyric poetry, comedy or idyllic poetry, tragedy, choral dance and song, erotic poetry and mimic imitations, sublime hymn, astronomy, and epic poetry). He also urged the importance of music in its modern sense.

For intellectual culture he would teach arithmetic, geometry, astronomy, and to such as would attain to eminence, philosophy. He also recommends rhetoric, and the laws of taste, and he strongly urges the necessity of moral culture, reverence for the gods, respect for parents, chastity, and reverence for law.

Aristotle was one of Plato's pupils. After an absence of some years, during four of which the future Alexander the Great was under his tuition, he returned to Athens, and established his Lyceum. Here, for thirteen years, he taught two classes daily, walking with them in the groves. His morning lectures were to the more advanced of his pupils, and treated of dialectics, physical science, and the more profound principles of philosophy. His afternoon walks and talks were with a larger company, during which he discussed political, ethical, and rhetorical questions. His school attracted attention in all parts of the civilized world, and its influence is strongly felt even at the present day.

In his "Politics" he enumerates four principal branches as necessary to a good education—gymnastics, music, grammar or language, and the art of design. Geography, under his hand, first assumed the form of a science. Of natural history he was the father, and of logic he was the inventor. He also advocated the education of women.

Alexandrian University.—The schools of Athens,

though somewhat degenerated, continued to attract attention for a hundred years after Aristotle's death, when they were eclipsed by the Greek schools at Alexandria, under the fostering hand of the Ptolemies. The author can not close this chapter without quoting from that most admirable work, Barnes's "General History," the following description of the Alexandrian University :

"The library comprised at one time in all its collections seven hundred thousand volumes. The museum was a stately marble edifice, surrounded by a portico, beneath which the philosophers walked and conversed. The professors and teachers were all kept at the public expense. There were connected with the institution a botanical and zoölogical garden, an astronomical observatory, and a chemical laboratory. To this grand university resorted the scholars of the world. At one time in its history there were in attendance as many as fourteen thousand persons. While wars shook Europe and Asia, Archimedes and Hero, the philosophers; Apelles, the painter; Hipparchus and Ptolemy, the astronomers; Euclid, the geometer; Eratosthenes and Strabo, the geographers; Manetho, the historian; Aristophanes, the rhetorician; Apollonius, the poet, labored in quiet upon the peaceful banks of the Nile. Probably no other school of learning has ever exerted so wide an influence. When Cæsar wished to revise the calendar he sent for Sosigenes, the Alexandrian. Even the Christian Church drew from what the ancients loved to call "the divine school at Alexandria" some of its most eminent fathers, as Origen and Athanasius. Modern science itself dates its rise from the study of nature that began under the shade of the Pyramids."

But how have the mighty fallen ! There is still in Alexandria a great university, but it is now great only in size. It is attended by none but the fanatical Mohammedans, and it is stated on good authority that there is not a single professor in the whole institution who knows the multiplication table. For a thousand years Greece shed forth a luster compared with which that of most other nations of the long ago pales into insignificance; and though her sun went down well-nigh two thousand years ago, its beams, transmitted in

a myriad of forms, supply intellectual impulse still to all the reading, thinking world.

“ Fair Greece ! sad relic of departed worth !
Immortal though no more; though fallen, great ! ”
—Byron.

ANALYSIS OF CHAPTER III.

The Transmutation of Greek thought.

THE HEROIC AGE:

No schools nor writing. The poems of Homer and Hesiod. Orphic hymns, and medical instruction. Was Homer a school-master? Cadmus.

Greece not one nation. Difference between Athens and Sparta.

SPARTA:

(a) Lycurgus travels. Why? (b) What he studies. (c) When he returns is looked to for guidance. (d) He prepares the Rhetra. (e) By this system the child belongs to the state. (f) If weak, destroyed. (g) Male children at the age of seven consigned to the care of public teachers. (h) Their scanty fare. (i) How they supplemented this. (j) The young martyr. (k) Severity of physical education. (l) What the literary education included. (m) Their moral (?) instruction. (n) The education of the Spartan girl. (o) Its fruit. (p) The “Spartan mother.” (q) No great men produced.

ATHENS:

(a) Solon's work. (b) What Athenian education included. (c) What was required of each parent. (d) The child remained at home until seven years old. (e) Then went to school with a *pedagogue*. (f) Who might visit the school. (g) Length of school day. (h) Discipline. (i) Schools under care of the state. (j) What was taught in the elementary schools. (k) The higher schools. (l) Parents allowed to select the order of the studies of their children. (m) The “probationary age” and its studies. (n) What at eighteen? (o) Origin of the word *school*. (p) The poor and slaves. (q) The females and the *hetera*. (r) The age of Socrates and Plato: (i) The appearance of Socrates and his habits. (2) Extract from Barnes's History. (3) The Socratic method illustrated. (s) Plato: (1) By whom educated? (2) He travels, and on his return establishes his school in the gardens of Academia. (3) What he advocated in his “Republic” and his “Laws.” (t) Aristotle: (1) Plato's pupil. (2) Teaches Alexander the Great. (3) He establishes the *Lyceum*—Its description.

(4) What he advocates in his "Politics." (*u*) The schools of Athens after Aristotle's death.

The Alexandrian University—How have the mighty fallen !

SUPPLEMENTARY QUESTIONS.

What can you say of Homer? What are his two great works? (Be sure to read some good translation of them, if you are unable to read them in the original.)

Describe the general character of the works of Hesiod. Why was he so unpopular among the Spartans?

What can you say of Sappho and her writings? Of Anacreon? Of Pindar?

What can you say of the writings of Æschylus? Of Sophocles? Of Euripides?

Who were the Greek Comedians? Give an account of their productions.

Who were the three great Greek historians? Give a short sketch of them and their works.

Who was the greatest Grecian orator?

Who were the Seven Sages? and what were they noted for?

Describe the Academic School of Philosophy. The Peripatetic. The Epicurean. The Stoic.

CHAPTER IV.

EDUCATION AND SCHOOLS OF ANCIENT ROME.

GREECE embodied the culmination of the intellectual forces of the ancient world. Her political power passed away, but in matters of education she remained pre-eminent. The Greeks were the school-masters of the nations; and Rome, the mistress of the world, received her learning, her art, her literature from conquered Greece. In fact, after the decline of Greek learning and literature, it can scarcely be said that any other great intellectual light shone on the earth until the dawn of the modern world in the Renaissance, the great new birth of intellectual activity, itself largely due to a revival of Greek learning.

About the year 753 B. C. a number of shepherds, driven by volcanic disturbances from their home in the Alban hills, founded a new city by the Tiber. *Rumon* was their word for river; hence their town came to be called the river-city, or Rome.

After the lapse of four hundred years Rome had absorbed a few neighboring cities; and what was more important, the long and memorable struggle between the Patricians, or nobility, and the Plebeians, or commoners, had ended in the complete victory of the Plebeians. Rome now ceased to be an aristocracy and became really a republic. She was still, however, an obscure little state, with no splendor and little learning, but she had freedom, energy, and an unconquerable spirit.

In three hundred and fifty years more, at the time of the

birth of Christ, the world held no power but Rome. Her eagle-standards glittered from barbarous Britain to the ancient empires of the Nile and the Euphrates; her military roads traversed all lands, and her omnipresent armies enforced peace and orderly government on the conquered nations.

The early Romans were the Puritans of the ancient world. They were much superior in purity of life to all ancient peoples except the Hebrew. Five hundred and fifty years of frugal living, of self-denial for the public good, of stern virtue and rigid morals, gave Rome the strength that conquered the world. But with ever-increasing conquests came unlimited wealth and power, unparalleled luxury and magnificence, and unexampled corruption.

Shortly before the beginning of the Christian era the old form of government fell; there was no longer virtue enough in the people to make a republic possible, and the nation became the Roman Empire, ruled by the Cæsars. The first two hundred years of the empire is the time of Rome's highest material power and splendor, of the greatness of her literature and her architecture; but the worm of moral rottenness was at the root of all this magnificence, and the empire finally fell because it was bankrupt in manhood.

Early Roman Education.—After this slight outline of Roman history, we return to the consideration of Roman education. The Romans had no idea of education by the state. In the earliest ages the children were taught at home. The mother trained them in reverence for the gods and their elders, and in strict obedience. The father taught his boys reading, writing, and a little arithmetic. The sons were also educated by constant companionship with their father, even when he was engaged in public business. Thus they were trained, says Mommsen, "wholly for the family and wholly for the state." The father held absolute au-

thority over his children, even to the power of life and death. The sons remained under this authority as long as their father lived; the daughters until marriage. Some authors maintain that only a few persons of the highest rank could read and write; but the later authorities seem to agree that these accomplishments were general, even among the lower classes.

The earliest historical mention of a Roman school is in the story of Virginia (B. C. 449):

"With her small tablets in her hand and her satchel on her arm,
Forth she went bounding to the school, nor dreamed of shame or
harm."

Later Roman Education.—With the conquest of the Greek cities in the south of Italy (about 270 B. C.), and especially with the conquest of Greece itself a century later, Greek learning was introduced at Rome. Greek teachers were imported—usually as slaves—schools were multiplied, and the range of study greatly increased. The first Latin school-book of which we have any knowledge is a translation of Homer made by a Greek slave about 250 B. C. The Romans had at this time no literature of their own. At a later period the poems of Virgil, Horace, and others, and the orations of Cicero were studied in the schools. We have quite extended accounts of the Roman schools at the beginning of the Christian era. They were of three grades. The primary schools taught the old and still popular curriculum of "the three R's." The little ones learned their letters at home from alphabet blocks, as they do now. Reading was taught by the syllabic method—a method well adapted to the perfectly simple and uniform spelling of the Latin language. The letters, syllables, and words were chanted in concert, after the teacher's dictation. The arithmetical calculations—which must have been sadly hampered by the Roman no-

tation—were accomplished by counting on the fingers, or by the aid of stone counters and a tablet ruled in columns. The child learned to write on wax tablets, the master holding and guiding his hand. Afterward he used pen and ink, writing on the backs of second-hand strips of papyrus. The copies set were moral maxims. No doubt Roman boys often wrote the maxim quoted by Paul from Menander and still found in our copy-books: "Evil communications corrupt good manners." Discipline was very severe. The Roman school-masters, like the English ones of the last generation, believed a boy's learning must be "well flogged in." Plautus says that for missing a single letter in his reading a boy was "striped like his nurse's cloak," and Martial, hundreds of years later, says "the morning air resounded with the noise of floggings and the cries of suffering urchins." "Morning air," indeed, for the schools began at daybreak.

As a knowledge of Greek was essential, children were early placed in the care of Grecian slaves—so early that they sometimes learned Greek before they did Latin. As they came to school age, these slaves led them to school and back, the attendant of the boys being called a pedagogue, as in Greece, and that of the girls a *nutrix* (nurse). It will be noticed that the Romans made one great advance on Athenian education—learning was not forbidden to the girls.

In the higher schools, the critical study of Latin and Greek masterpieces was pursued. The wonderful system of Roman law was studied: every school-boy was expected to know by heart the Twelve Tables which were regarded as its foundation. Declamation and oratory were studied with the most minute attention, and with such regard to complex rules of gesture, etc., that accomplished orators in mature life found it necessary to keep themselves in

constant practice, as a pianist does. Geometry and music were included in the branches of study.

At sixteen the boy came of age, and henceforth might attend the lectures of any philosopher he chose. His education was usually completed by a course at Athens, or perhaps at Rhodes or Alexandria.

Books and Libraries.—The Romans in time produced a stately and splendid literature, largely imitated from Greek models. Books, once so excessively scarce and expensive, became plentiful and almost as cheap as in our own day. There existed in Rome private libraries of 60,000 and even 100,000 volumes. It should be remembered, however, that when the ancients spoke of a book they commonly meant what we should call a chapter—and their chapters were usually very short, besides. It still seems incredible that books should have been so multiplied by copying them out by hand; but this was done by slave labor. Fifty or a hundred copies were often made at one time, one slave reading aloud, while the rest wrote what he read. Books were usually made of papyrus, as cheaper than parchment. The separate slips were first written, then pasted together and wound on a little roller, which had ornamental knobs on the ends, and was enclosed in a handsome case, with the author's name upon it. Books made of parchment, however, were sometimes cut in leaves and sewed together, like those of the present day. An ancient private library (the room) has recently been excavated in Rome. It was circular in shape, with alcoves for books, and between the alcoves marble busts of authors.

Besides all the private libraries with their slave copyists, there were regular publishing houses in Rome. One thousand copies were usually issued as the first edition of a new book. There were twenty-nine public libraries, of which the Ulpian, founded by the Emperor Trajan, was the

most important. Some of the magnificent colonnades erected by Roman nobles for the public benefit and their own glory, where people might walk sheltered from summer's sun and winter's wind, were adorned with numerous maps of the different countries of the empire, drawn from government surveys.

Civil Engineering is not mentioned as among the studies pursued in Roman schools, but it certainly was taught somewhere with wonderful success. Not to speak of the immensity and grandeur of Roman architecture, the military roads were marvels both of engineering skill and solid workmanship, and the magnificent aqueducts that supplied not only Rome, but every city of any size, with abundant pure water, are the wonder and despair of all succeeding ages. So skillful were the Roman engineers that they could run a tunnel miles in length, starting from opposite sides of a mountain, and meeting in the center.

The Emperors and Education.—As Roman rule was extended over the civilized world, the various seats of Greek learning passed under her dominion, including the philosophic schools of Athens and the great university of Alexandria. The Roman emperors did much to foster literature and learning. The right of Roman citizenship, so highly prized by the Apostle Paul, was conferred on all foreign teachers who should settle in Rome. New schools of high repute sprang up in the provinces, as at Mitylene, in Asia Minor; Marseilles, in France; and Cordova, in Spain.

The first college supported by the state, established in the Roman Empire, was one founded by the Emperor Vespasian (A. D. 69-79), and completed by ~~Hadrian~~ (A. D. 117-38). It was called the Athenæum. Antoninus Pius (A. D. 138-61) founded similar schools in all the chief cities of the empire. He also established a school for orphan girls, in memory

of his deceased wife. The success of this incited him to establish similar schools for both sexes in Rome and other cities.

Christian Education.—By the close of the second century the old order was manifestly perishing; but a new force was coming into the world, and the great uplifting power of Christianity began to be felt. With the Christian Church came the Christian parish school, both modeled on the Jewish synagogue; and now for the first time the great moral force conserved through 1500 years in the Hebrew race was poured into the current of the world's life. The two great elements of purity of life and of human equality, unknown to the Roman Empire, but trained into the Jew through forty generations, were now sent into the world, with all the multiplied spiritual force of Christianity. Its blessings came first to the poor and lowly—to women, to children, and to slaves. The great regenerating idea that any one of the least of these was as precious in the sight of God as the Cæsar on his throne, began to enter into the hearts of mankind, and the lofty and lovely character of Christian women was viewed with amazement by their heathen neighbors. Christian schools of high grade began to arise. The first was founded in Alexandria (A. D. 181) by the side of the great pagan university; and one at Cæsarea was established about forty years later. Meanwhile, the more highly educated pastors and bishops taught pupils at home, not merely theology, but the learning of the day.

The Alexandrian University* was one of the last strongholds of paganism; here the philosophy of neo-Platonism—Plato with oriental modifications—was originated and taught. And here we find in the fourth century, in the character of Hypatia, a striking instance of how far Chris-

* See page 153.

tian ideas had modified their professed enemies. Hypatia was the beautiful and noble daughter of a professor of philosophy, who, on her father's death, succeeded to his professorship. The beauty and elevation of her character equaled the brilliance of her intellect. Though she called herself a pagan, Christianity alone made such a woman possible. Unhappily, she fell a victim at last to the intolerance of a Christian bishop. In A. D. 389 Alexandria became a Christian university.

As early as the beginning of the fourth century, Christian schools, which taught all the branches of learning known to the times, were established in Rome, Carthage, Milan, Treves, Autun, Marseilles, and Lyons. In the hundred and seventy-five years which intervened between this period and the final downfall of the empire, similar schools were established in many other cities. Amid the constant turmoil and terror of barbarian invasion, however, the quality and quantity of learning imparted in the schools had greatly deteriorated, and with the fall of the empire the long night known as the Dark Ages fell upon Europe.

ANALYSIS OF CHAPTER IV.

Greece the school-master of the ancient world.

Brief outline of Roman history—founding of the city—struggle between the two orders—conquest of the world—fall of the republic—splendor of the empire—decay and fall.

Early Roman education entirely domestic—narrow and severe, but of high moral tone. First mention of a Roman school.

Introduction of Greek education—the first Latin school-book—the primary schools. How reading was taught—arithmetic—writing—the severity of the discipline—teaching Greek to children.

Curriculum of the higher schools—literature—law—oratory—philosophy.

Literature and books in Rome—number and extent of private libraries—how books were manufactured—cheapness and abundance—description of a library in a private house.

Public libraries—the Ulpian—maps of the empire in the public colonnades.

Great skill of the Romans in civil engineering.

The acquisition of universities by conquest. Schools founded by the emperors— orphan asylums of Antoninus.

The Christian Church and Christian schools modeled on the Jewish synagogue—elements which the Hebrew race contributed to civilization—Christian doctrine of human equality—character of the Christian women.

Christian colleges at Alexandria and Cæsarea. The University of Alexandria one of the last strongholds of paganism—Hypatia. Christian colleges established through the empire.

The general decay of learning.

SUPPLEMENTARY QUESTIONS.

What is the great epic poem of the Latin language?

Who were some of the leading historians?

Is there a dramatic literature in Latin?

What was the Ptolemaic theory of the motions of the sun, moon, and planets, as taught at the Alexandrian University, and generally believed down to the dawn of modern times?

Who was considered the greatest orator of Rome?

What is meant by the phrase “The Christian Fathers”?

What great work was done by St. Jerome? For what is Augustine celebrated? What is the meaning of the name Chrysostom, and why was it given?

CHAPTER V.

THE EVOLUTION OF THE NEW OLD WORLD.

As the private soldier sees little or nothing of the plan in the mind of his general, and often seems to be marching on to certain doom when he is in reality only doing his little part in a great plan, so the various tribes and nations of the evolving higher life of the middle ages, not seeing the plan in the mind of Him with whom a thousand years are as but a single day, must often have felt, in very truth, that "God had forgotten the world." And so, too, the student of history, unless he can succeed in grasping first of all a general idea of the great contending forces that were acting and reacting on each other to forge out the higher and nobler civilization of the modern world, will lose the most valuable part of the study of the history of education.

We have seen in our study of the evolution of mind and moral character in the individual that the highest ideal may be reached in just the way we know it *is* reached —by constituting man a free agent with the power to follow his own free will, but with the unvarying pole-star of eternal truth implanted in his soul to guide him in the path of moral rectitude. And as nations are but the aggregation of individuals, the great ideal of national life is very similar. Nations, like men, must work out their own characters, and stand or fall as they regard or disregard the eternal laws of truth and justice. So, too, as the highest personal character is only attained by years of discipline of the baser powers of the soul, and perhaps

even through the experience of its own folly, the higher civilization of a nation is attained along the same rigid line of discipline.

Again, the civilization of an epoch does not depend on the attainments of any one nation, but on the aggregate of the intelligence and moral worth of all combined; and it must, therefore, be apparent to any thoughtful mind that, taking the world as it was at the beginning of our era, the evolution of the higher Christian civilization must be the work of tedious centuries.

If we study the middle ages with this thought in view, we shall certainly not find them wholly "dark." There is ever a pillar of light before the advancing host—a light which, however much obscured by the fog and the mist engendered by the meeting and commingling of the warmer currents of the New with the chilling dampness of the Old, still shines on, and this advancing, leading light is Christianity.

In looking back over the mediæval times from the vantage ground of the nineteenth century, the wonder is not so much that these ages were dark, as that any gleam of light at all was kept alive.

It will be remembered that the Roman eagles, early in our era, had spread their broad wings over a great part of the then civilized and much of the uncivilized or half-civilized world. Speaking roughly, the Roman dominion was now bounded by the Rhine, the Danube, the Euphrates, and the great deserts of Africa. Wherever in the West the Roman standards were planted, there, for the most part, Roman institutions were established, the Latin language was in time naturalized, and in too many cases the vices of the fast-decaying civilization of Rome were engrrafted without many of the elevating influences of its earlier and better life.

Decay of Rome.—The Roman of these later times was a proud, ambitious creature, devoid of natural affection, with little love for any thing save Roman supremacy and the gratification of his own baser passions. He recognized no law of pity or compassion, and his religion, so far as he now professed any, consisted for the most part in shrewd bargainings with the gods for temporal power or sensual indulgence. For want of any thing worse to worship, altars were erected to the embittered emperors, where vows and prayers were daily offered. “Not even the Egyptians, crouching in grateful admiration before a crocodile,” says Zerffi, “so outraged humanity as did these polite Romans, rendering divine honors to an emperor like Aurelius Commodus, who fought seven hundred and thirty-five times as a common gladiator in the arena before the enervated people.”

If we can imagine, in these better days, a people so brutalized that they found their chiefest pleasure in looking on these gladiatorial contests—combats in which men fought to the death with swords or spears, or three-pronged forks; shows in which wild beasts, made ravenous with hunger, were turned loose in the arena to devour men and women, and even helpless children—if we can picture to our minds such scenes as these, we may gain some faint conception of the influence that went forth from Rome to all her western provinces during the five hundred years of her slow, leprous death. This may give the first impression of what the new Christian education and humanizing power had to contend against in its earliest struggle for existence *

* In the year 404, Telemachus, an eastern monk, suddenly appeared in the arena of the Colosseum at Rome between two gladiators, and with prayer and gesture bore his testimony against these unchristian games. The Praetor Alybius immediately ordered his slaughter. Struck with his grand heroism, the Emperor Honorius abolished the shows and never afterward were they permitted. Telemachus was canonized, and is now in the Saint's Calendar.—Southwick.

Barbarian Invasions.—But this was not its only nor perhaps its greatest obstacle. No sooner had it gained an uncertain foot-hold in the more southern provinces of the empire, than there poured in from the north and east vast hordes of pagan and barbaric conquerors, overrunning the land from time to time, and not only undoing much that had been done, but bringing with them their heathen gods and barbarism. The first important influx of this description was that of the Goths, from the north shore of the Danube, who were driven from their native land by the Huns, a fierce swarm of hideous barbarians from the distant east, in the latter part of the fourth century. In the early part of the fifth century, part of the Goths, under Alaric, captured and sacked the city of Rome itself. German tribes about the same time were pressing south into France, and from thence passed southward into Spain, and in time a virtually independent kingdom was established here. In a similar way came other incursions, the conquerors forming new states in the west, the germs of modern European nations.

One tribe of cruel invaders that were especially ruthless is known as the Vandals. Fortunately, however, these formed no permanent settlements in Europe. They lingered for a time in Spain, and then, leaving ruin in their path, they passed to northern Africa. This was during the first half of the fifth century, and from these destroyers we have our English "*Vandalism*."

But in spite of all these invasions and their consequent ruin and devastation, in spite of the utter rottenness of the Roman civilization, the new power was not crushed out, and instead of being conquered by the invading hordes, it conquered *them*, and by its elevating power raised them to a higher plane. The growth was indeed slow, for it requires a vast amount of moral and intellectual energy to

elevate society just a little, even under favorable circumstances, and when war and pillage is the normal state of things the task becomes stupendous.

Rise of the Romance Languages.—By the time of the Teutonic settlements in Western Europe, Latin had become the common speech of France and Spain, as well as Italy, the native languages still lingering only in a few remote corners, as among the Basques. The language which the German invaders therefore found it necessary to learn in order to get on well in their southern homes was Latin—or, rather, such a form of Latin as was spoken by the common people of these remoter provinces, which was naturally much corrupted from the pure Latin of the great classic writers.

As the Germans learned to speak these dialects, they became still more corrupt, and a large number of Teutonic words and idioms crept in. So, in time, the common language of Italy, France, and Spain became corrupt Latin dialects, which were used in common conversation; though in writing, the few that had acquired this art still used fairly good Latin for centuries afterward.

No one thought of writing in the common speech, which now began to be known as Roman, in distinction from the *written* language, which was called Latin. Thus, out of the various “Roman” dialects some of the principal languages of Europe took their rise, and these are therefore designated the “*Romance*” languages—Italian, French, Provençal, and Spanish.

Latin in the Schools.—From the consideration of the foregoing, it will at once be seen why Latin gained such foot-hold in all the schools of the middle ages, and why it lingered in the lower schools so long after the common speech had been reduced to writing.

In the earlier mediæval times one must needs learn

Latin before he learned *to write*, and it thus came to be regarded as the very starting-point of education. He who could not speak Latin must remain wholly illiterate. And from the force of habit, much of this custom lingered in the educational systems of Western Europe long after the necessity for it had ceased to exist. In fact, this tendency to teach Latin first and last and all the time was one of the great hindrances to the cause of popular education, even down to very recent times. So much of a boy's time was devoted to this subject that there was little left for the study of his own language—"the vulgar tongue"—and every thing else went almost wholly by default. This tended, too, to make school-life a synonym of all that was wearisome and distasteful, since the study of Latin by the old-time methods presents few attractions to the average boy or girl at the age of seven or eight.

Mohammedan Learning.—Another element which exerted a mighty influence on the educational and general civilizing forces of the mediæval world was MOHAMMEDISM. That the Arabs, or Saracens, wielded a good as well as a baneful influence on the character of the age can scarcely be disputed by any impartial historian; but that their influence was as salutary as many more recent writers have contended is more than doubtful. Some of these writers seem to believe that there were few, if any, of the graces and virtues which the Saracens did not possess, while they willingly ascribe to them all the learning of the mediæval times, as well as much that was then totally unknown.

That Saladin, for example, possessed many high qualities is undoubtedly true; but that he and his followers were the paragons depicted in Scott's "Talisman," is too much of a strain on credulity. And again, when we find historians asserting that the Saracens of the mediæval times "gave to algebra and trigonometry their modern forms," and that

they introduced "the Indian method of numeration"—in the face of the facts that much of both algebra and trigonometry "in their modern form" came into use long after the Saracens had been driven out of Spain, and after they had ceased to lay any claim to scholarship, and the fact that the Hindoos had no method of *numeration* other than the decimal system (which all nations everywhere have used from the earliest dawn of history); and when others tell us, again, that the Arabs introduced the system of *notation* which bears their name, in the face of the fact that Boethius employed the nine Hindoo signs in his mathematical works more than two hundred years before the Mohammedan hosts set foot in Spain—when facts like these confront the student of educational history, he feels disposed not only to believe that the Saracen has been greatly overdone, but also to receive with a large grain of allowance other seemingly exaggerated statements by these same authors regarding the Arab's erudition.

Still, making all due allowance for exaggeration, there can be no doubt that the Mohammedan movement gave a new impulse to thought during the seventh, eighth, ninth, and tenth centuries. The Koran enjoined on all good Mohammedans that they should *read* it, and this fact of itself gave a wonderful impetus to elementary education; then disputes soon arose among the Mussulmans, as among the early Christians, as to the correct interpretation of the tenets of their faith, and this induced the study of the Greek philosophers. So, when they overran northern Africa in the seventh century, and Spain in the eighth, giving to the conquered people everywhere their choice of "the Koran, tribute, or the sword," they brought the germs of this new influence with them; and when the clash of arms was over, and the new Saracen Empire was firmly established in Spain, it rapidly developed to maturity. Mohammedan schools

were multiplied; great universities were established during the eighth and ninth centuries, and in the first half of the tenth century there are said to have been no less than seventeen of these great educational centers, attended by many thousands of students, not only Mohammedans, but Christians from all parts of Europe. Great libraries are said to have been connected with some of these institutions —the one at Cordova numbering 600,000 volumes. It is very probable, however, that the word "volume" here is to be understood in the sense in which it was used at Rome at an earlier day—to mean, not books, as we understand the word in common conversation, but *chapters*, and often very short ones at that. We will do well also to compare such statements with the one that when these same Mussulmans took Alexandria, the flames of its four thousand baths were fed six months with the priceless manuscripts from the libraries of the Ptolemies, Osman declaring: "If the manuscripts agree with the Koran, they are useless; if they disagree they should be destroyed;" and also the statement that a Saracen physician refused to go to Bokhara, at the invitation of the Sultan, on the plea that his private library would make four hundred camel-loads. It seems probable that some of these statements may be explained on the theory of "oriental figurativeness."

Progress of Christianity.—The first struggle of the new civilization was, however, not with Mohammedism, but, as indicated at the opening of this chapter, with the power of Rome, which early set itself to crush out that which had the hardihood to face the all-pervading moral leprosy. Yet when it was seen how heroically these Christians suffered martyrdom; when it was observed by their heathen neighbors that the children of these persecuted people practised a high morality, which they could not help admiring, however much their own lives were at variance when the

chastity of thought and conversation of the Christian maidens was contrasted with the rudeness of their own daughters; when the Christian wife and mother was compared with that of the pagan—when the various graces of the Christian education forced themselves upon the observation of the Romans, they called forth encomiums from even the fiercest of the pagan writers.

In this way the leaven slowly worked until the beginning of the fourth century, when the new faith was professed by the Emperor Constantine, and then, with the power of the empire to sustain it, and its own inherent virtue to commend it, made most rapid progress; and notwithstanding its temporary check under the Emperor Julian, it had won its way by the beginning of the fifth century to nearly all parts of the empire, and the great majority of those within its borders were at least nominal professors of its tenets.

Christian Learning vs. Paganism.—This naturally gave a mighty impulse to the Christian schools, but the barbarian invasions for the next two hundred years well-nigh destroyed their influence in many sections, and in others totally uprooted it. What primary schools remained were for the most part devoted to the oral teaching of the doctrines of the Church, and in some of them writing was entirely unknown. One great hindrance to the cause of education in its ordinary meaning during this troublous period was the fact that all the learning of the previous age was in the Latin language, and this was so interwoven with paganism that the Church feared its influence on the popular mind, which doubtless still retained more or less of the abandoned faith. The ecclesiasts naturally regarded the soul as of much more value than the mind; and they felt, no doubt, that they were driven to a choice between the two. That they were not wholly wrong in this, especially in the earlier centuries of this epoch, while the people were still

half-pagan in thought, is doubtless true. It is held by some that even in this age, with eighteen hundred years of Christian civilization back of us, young men come out of certain of our colleges with more of pagan philosophy than Christian ethics in their heads. Says Symonds, in his "Revival of Learning," page 59:

"The Church, while battling with paganism, recognized her deadliest foes in literature. Not only were the Greek and Latin masterpieces the stronghold of a mythology that had to be erased from the popular mind; not only was their morality antagonistic to the principles of Christian ethics; in addition to these grounds of hatred and mistrust, the classics idealized a form of human life which the new faith regarded as worthless. What was culture in comparison with the salvation of the soul? . . . It was easy to pass from this state of mind to the belief that learning in itself was impious."

The writings of these times abound in fierce denunciations of the classics. Gregory of Tours cries: "Let us shun the lying fables of the poets." Alcuin regretted that in his boyhood he had preferred Virgil to the legends of the saints, and he stigmatized the Latin writers as "wanton;" and even Augustine deplored his time spent in reading Virgil. Some of the monkish scribes gloried in their own ignorance, and they regarded bad grammar as a sign of grace. Thus even Gregory the Great writes: "The place of prepositions and the case of nouns I utterly despise, since I deem it unfit to confine the words of the celestial oracle with the rules of Donatus." It would be easy to fill a volume with similar quotations from the ecclesiastic writers of the fifth and sixth centuries, but these must suffice. Symonds sums up the whole matter in these words:

"Thus the opposition of the Church to paganism, the conviction that Christianity was alien to [Roman] culture, and the absorption of intellectual interest in theological questions, contributed to destroy what had remained of sound scholarship in the last years of the Empire. The

task of the Church, moreover, in the middle ages, was not so much to keep learning alive as to moralize the savage races who held Europe at their pleasure. Pure Latinity, even if it could have been instilled into the nations of the North, was of less moment than elementary discipline in manners and religion. It must not be forgotten that the literature of ancient Rome was artificial in its best days, confined to a select few, and dependent on the capital for its support. After the dismemberment of the Empire, the whole of Europe was thrown open to the action of spiritual powers who had to use unlettered barbarians for their ministers and missionaries. To submit this vast field to classic culture at the same time Christianity was being propagated would have been beyond the strength of the Church, even had she chosen to undertake this task, and had the vital forces of antiquity not been exhausted."

On this important question, Sir Alfred Lyall, an Anglo-Hindoo official who has had abundant opportunity to study the influence of paganism in real life, says: "At a time when pagan tribes and communities pressed into the Church, nothing but a supreme ecclesiastical authority saved Christianity from falling back into a sort of polytheism."

ANALYSIS OF CHAPTER V.

The evolution of the higher civilization through the downfall of the old. Nations, like men, must work out their own destiny through experience of their own follies.

The working out of the Christian civilization the necessary work of tedious centuries. How we should, therefore, regard the middle ages. The wonder in looking back over them.

WHAT THE NEW CIVILIZATION HAD TO CONTEND AGAINST :

(a) The extent of the Roman power. (b) The degenerate Roman civilization, as exhibited in the worship of the emperors, the gladiatorial combats, and wild beast fights. (c) The invasion of the barbarians—Goths, Vandals, Huns, etc.

The new power not crushed out, but, on the contrary, wins the invaders to the new faith. The growth necessarily slow. Why?

Latin had become the common speech in southern Europe. The original language. Influence which the invading Germans had on the common speech.

The distinction between Latin and "Roman"—Hence the rise of the "Romance Languages."

How the study of Latin in the primary school had its origin; and how this system clung to the schools beyond its natural time. Its influence on popular education.

THE INFLUENCE OF MOHAMMEDISM: (a) It exerted some good influence as well as bad; but the good has been exaggerated—Saladin.—"Algebra and trigonometry in their modern forms."—"The Indian method of numeration and notation." (b) The cause of the good influence which they actually did exert. (c) The multiplication of schools, universities, and libraries. (d) How the statements in regard to some of them are to be understood and received.

THE STRUGGLE OF THE NEW CIVILIZATION WITH THE POWER OF ROME: (a) The moral influence which the Christian home exerted. (b) The conversion of Constantine—Its rapid progress then for a season. (c) Its checks. (1) Julian. (2) Barbarian invasions.

The primary schools now devoted to the inculcation of the doctrines of the Church, and secular education crowded out.

All the learning in the Latin language, and this so pagan that the ecclesiasts feared its influence on the half-pagan population, and so tabooed it. Query: Were they wholly wrong in this? What Symonds says on this subject.

Statements from the writers of that date in regard to the classics: (a) Gregory of Tours. (b) Alcuin. (c) Augustine.

How some even gloried in their ignorance of grammar—Gregory the Great.

The matter summed up by Symonds. Sir Alfred Lyall's statement.

SUPPLEMENTARY QUESTIONS.

Give a sketch of the life of Mohammed. What do you understand by the Hegira?

What can you say of the Koran? Who were the Saracens?

How much of the world did the Moslems conquer? Where were they finally checked in Europe?

Sketch the effect which this battle probably had on the destiny of the modern world.

What can you say of the general condition of modern Mohammedan countries?

What can you say of some of the early persecutions of the new faith?

CHAPTER VI.

THE EDUCATIONAL FORCES IN EUROPE DURING THE MEDIÆVAL AGES.

IN our last chapter we glanced at some of the great forces that were most potent in shaping the destiny of the New Old World. We found arrayed on one hand Christianity, with its advancing torch, amid the encircling darkness, and on the other the seductive influence of the luxurious but soulless Roman civilization, and the brute force and paganism of the many invading tribes of fierce barbarians.

As time advanced, and the danger of relapse to paganism decreased, the Church began to feel the necessity of educating, as well as humanizing and moralizing, society, and a middle course was adopted. Latin seemed necessary for ecclesiastical uses, for the interpretation of the Scriptures and the Fathers, and for the establishing of a common means of communication among those who spoke different languages. Grammar had, therefore, to be taught in the schools; and this naturally introduced some of the Latin authors. Hence, writers who had formerly been utterly condemned were now adopted as a sort of necessary evil; and, to render them less dangerous to the student, the scribes often sought to make them edifying at the expense of their original meaning. Thus, Virgil and other great authors were made to say what would have much astonished them. So much like a mediæval monk was Virgil made to seem that the following legend of St. Paul's having visited the

tomb of the great poet at Naples was sung in the church service for St. Paul's day:

“ When to Virgil's tomb they brought him,
Tender grief and pity wrought him
To bedew the stone with tears:
What a saint I might have crowned thee,
Had I only living found thee,
Poet first and without peers ! ”

Several of the great Latin authors were read to some extent by the more scholarly throughout the middle ages, but the general knowledge and intellectual vigor necessary for the comprehension of these works was generally wanting, and it thus happened that epitomes and digests, and the revised forms before referred to, were most in demand.

“ Of Greek there was absolutely no tradition left. When the names of Greek poets or philosophers are cited by mediæval authors, it is at second hand from Latin sources; and the Aristotelian logic of the schoolmen came through Latin translations made by Jews from Arabian manuscripts. Occasionally it might happen that a Western scholar acquired Greek at Constantinople, or in the south of Italy, where it was spoken; but this did not imply Hellenic culture, nor did such knowledge form a part or parcel of his erudition. Greek was hardly less lost to Europe then than Sanscrit in the first half of the eighteenth century.”—“ *Revival of Learning.* ”

Mediæval Text-books and Course of Study.—We will gain a clearer idea of the education and the schools of the earlier part of the middle ages from an examination of the text-books and courses of study then in vogue. The course of instruction was generally divided into what was known as the *Trivium* and the *Quadrivium*. The former (*three roads*) included grammar, logic or dialectics, and rhetoric; and the latter (*four roads*) included music, arithmetic, geometry, and astronomy. We shall greatly err, however, if we assume that these studies implied any thing

like what they do in our day, or that any very considerable part of the population came under the influence of any one of them, excepting music used in religious services.

"The usual, and indeed the almost universal, text-book in all these studies, for nearly a thousand years, was the *Satira* or *Satyricon* of Marcius Mineus Felix Capella, an encyclopædia in nine books of these sciences, in which prose and poetry alternate about equally. This singular work, which has come down to our own times, was written about A. D. 470. The first two books are entitled '*De Nuptiis Philologiae et Mercurii*', [The Marriage of Philology and Mercury], and give, with copious verbiage, a narration of the adventures of Mercury in search of a spouse, his rejection by Sophia [wisdom], and Psyche [the soul], and his final wooing of Philologia; the subsequent books introduce in turn the children of this redoubtable pair, in character, beginning with Grammar, armed with the needful implements of her art, and recounting her history and achievements; she is followed successively by Dialectics [Logic], Rhetoric, Geometry, Arithmetic, Astronomy, and Music, each of whom declares her attainments, in alternate verse and prose.

"The meagerness of the instruction in these studies may be inferred from the fact that the arithmetic occupies but a brief space, and gives only the digits and their fractions, without any valuable instruction, even in the elementary rules. It is mainly occupied with discussions concerning the mystical virtues of certain numbers. The grammar is equally brief, and dwells principally upon the names and powers of the letters. The geometry is very little better, though Euclid's work was not rare. The other books, except that on dialectics, are nearly valueless. Aristotle was the basis of all dialectic instruction, though his works were not available in Latin until a few years later.

"The only formidable rivals of Capella in the publication of these encyclopædic text-books were Cassiodorus and Isidore, who flourished in the sixth century. Their works are even more meager in instruction than that of Capella—the arithmetic of Cassiodorus occupying but two folio pages, and not containing a word even of the elementary rules of the science. His geometry occupies about the same space, and contains only a few axioms. The grammar and rhetoric are of about equal value. Music then, as later, was confined mostly to church chanting; and astronomy was only a brief epitome of the system of Ptolemy, and did not even explain the cause of eclipses. And these

were the text-books for the next thousand years! And even in these, few went beyond the *Trivium*. . . .

"Boethius [in the early part of the sixth century] translated several of Aristotle's and Plato's works, and himself wrote treatises on arithmetic, rhetoric, music, geometry, and the quadrature of the circle. He also translated the works of Euclid, Archimedes, and Ptolemæus of Alexandria. But his works were too learned for the age in which he lived, and seem never to have come into very general use. The intellectual nadir of the world was approaching; in the seventh century ignorance sounded its lowest depth. Isidore, Bishop of Seville (570-636), is almost the only man of this period of darkness who could lay claim to any considerable scholarship, and his attainments in science would be regarded as exceedingly meager in our times; yet he was at that day considered a prodigy of learning. It is recorded to his honor that he attempted to diffuse education among his clergy, and established a school at Seville. He also prepared an encyclopædia, near the close of his life, in which he attempted to give to the world a compendium of the knowledge which appeared so vast to his contemporaries.

"This work was in twenty books. The first three were devoted to the seven liberal arts [the *trivium* and *quadrivium*], and may be supposed to furnish a *résumé* of his knowledge in regard to them; but they do not contain one tenth of the information to be found in our most elementary school-books. Under the head of arithmetic, for instance, he only explains that arithmetic and the names of numbers are derived from the Greek, speaks of their usefulness, especially in enabling us to understand the mystic sense of some passages of Scripture, and divides them into even and odd numbers; and then proceeds to speak of geometry. In grammar, he had evidently no knowledge of syntax and very little of etymology; he confounds rhetoric with dialectics, and considers astrology a valuable department of astronomical knowledge. The remaining books are occupied with such topics as these: medicine; law; the Scriptures; God; an account of heretics and their opinions; languages, of which he specifies three principal ones—Hebrew, Greek, and Latin; a Latin dictionary with very fanciful derivations; man and the parts of the body; animals; the world and its visible phenomena; geography; great cities; precious stones; agriculture; war; the drama, etc.; miscellaneous subjects.

"On most of these topics the ideas enunciated are crude, fanciful—often, indeed, absurd. Yet, if we compare the attainments necessary for the preparation of such a work with those possessed by the kings,

nobles, and even the bishops and inferior clergy of his time, we can readily understand why he should have had so exalted a reputation. Of the kings then reigning in Europe, very few were able to read, and still fewer to write. . . .

"Schools were attached to the cathedrals and the monasteries, and had been, in many cases, since the latter part of the fourth century; but the children were at this period seldom taught either to read or write. The ability to repeat and chant the *Credo*, the *Pater Noster*, the *Ave Maria*, and a few Latin hymns, without any idea of their signification, was the extent of their instruction."—*Philobiblius' "History of Education."*

Ancient Irish Schools.—In the sixth and seventh centuries, while learning was at its lowest ebb on the continent, the Irish schools flourished, and were considered the best in Europe. The condition of England in matters educational was much better at this time than that of the continent, but the great English Bede, himself the most distinguished scholar of the time, assures us that nobles and students of lower rank went by hundreds from England to the Irish schools. One great peculiarity of these schools was that, in addition to the usual curriculum of convent schools, they taught a twelve years' course in the Irish language and literature. This is the earliest example in Europe of education in the vernacular. Some of the teachers in the Irish schools were laymen.

Charlemagne.—The first decided move toward a higher intellectual stage on the continent was made by Charlemagne toward the close of the eighth century. In a tour through Italy he fell in with Alcuin, who had been educated at York, England, and who was at that time the head of a school established by the Archbishop of York; and this able and learned man was induced by the great emperor to make his residence at his own court. Charlemagne placed himself and his entire household under Alcuin's tuition, and not only did they themselves make rapid advancement, but the

example set by the emperor was contagious. The cathedral schools were reopened and improved, the Roman literature was again brought to light, the manuscripts corrected and for the first time punctuated. He issued two addresses to the priesthood, insisting on a higher standard of education among themselves, and more efficient instruction in the schools. Alcuin finally withdrew from the court, on account of age, and then established an excellent school at his Abbey of St. Martin of Tours, about the opening of the ninth century. From this educational center other able teachers went out, and had the successors of Charlemagne set equally good examples, there can be little doubt that the permanent revival of learning need not have been postponed; but after his death the good cause was soon abandoned, in spite of the efforts of a few heroic men, and the old order was resumed, though some of the effects of the good work lingered on amid the darkness.

Alfred the Great.—The next great patron of learning to be noted during this epoch was Alfred the Great. In the British Isles, the cloistral schools of York, Canterbury, Oxford, Cambridge, and of Ireland had been far in advance of most of those on the continent, but the masses were still totally illiterate. The civil disorders which preceded Alfred's reign, together with the Danish invasions, and the consequent destruction of the convents, schools, and libraries, both in England and Ireland, had induced a state of ignorance and wretchedness such as had been theretofore unknown among the subjects of his realm. Up to this time there had been but few books written in the vulgar tongue, and the good king, wisely judging that his people needed books in a language they could understand, translated with his own hand, amid a multitude of other most exacting cares, the works of Boethius, before referred to, and others; and he induced other scholars to engage in

similar useful work. He re-established many of the monastic schools, and used every effort in his power to place them in the care of able teachers.

Religious Orders.—But in England, as on the continent, this revival of learning was but transient, and it did not long survive its noble patron; the tenth century in England is regarded as one of the darkest in its intellectual history. Among the lights which glimmered in the intellectual darkness of this period, some of the monastic orders should be mentioned. The Benedictine Monks, for example, devoted themselves to the work of instruction, and in the tenth century they did much efficient work. The orders of Chartres and Citeaux, founded near the close of the eleventh century, also did valuable service in the maintaining of the monastic schools. Their labors were most felt in Germany, where, during the tenth and eleventh centuries, many schools of the better class were established and maintained by them. In these schools, in addition to the seven liberal arts of the *trivium* and *quadrivium*, painting and poetry and the Greek and Latin literature were taught, and valuable libraries were collected. The cathedral and collegiate schools of Germany during the closing centuries of the middle ages, says "Philobiblius," surpassed the conventional in their curriculum of study, and in their freedom in the use of the Latin and Greek authors. But this freedom was confined to Germany. Elsewhere throughout Christendom the Greek and the Latin of the Augustine Ages were prohibited studies.

Nor must "The Brethren of the Common Life," organized in Holland about the middle of the fourteenth century, by Gerard de Groot, for the purpose of teaching and reforming the vicious be forgotten. Thomas à Kempis was one of their pupils at Deventor, and it was doubtless in part to their influence he owed his greatness. In a few

years they had over a hundred schools, and in less than a century they had found their way into most of the cities of northern Europe.

Some idea of the nature of the discipline in the schools during the latter part of the middle ages may be gained from a glance at the title page of almost any of the textbooks of the period. It is adorned with the picture of a schoolmaster, armed with a bundle of rods of no tender growth. The code of the school at Worms, in the latter part of the thirteenth century, runs as follows: "Any pupil whose bones have been broken, or who has been severely wounded by his master, in chastising him, shall have the right of quitting the school without paying the *honorarium*."

The education of girls received but little attention throughout this epoch. A few schools for the instruction of girls in reading were to be found in the larger cities in the twelfth, thirteenth, and fourteenth centuries; but beyond this female education seems to have received little attention. A writer of the fifteenth century defines the proper education of woman to consist in "*knowing how to pray to God, to love man, to knit, and to sew!*"

The Schoolmen.—During the twelfth and thirteenth centuries there sprang up a new scholastic philosophy, the essence of which lay in subtle quibbles, and in the artful fence of logic. Such profound questions as how many angels could stand on the point of a needle, whether a spirit could pass from one point to another without passing through the intermediate space, etc., etc., were vehemently discussed by the ablest thinkers for more than two centuries; and great universities sprang up to champion one side or the other of these wordy wars. Twenty-three such universities are said to have been thus organized, and they were thronged by many thousands of eager students. This is what is known as *the era of the schoolmen*.

Yet, though the questions discussed during these fierce contests were, for the most part, utterly impractical, and though their decision added nothing to the material prosperity of the age, they awakened keen intellectual activity, and thus prepared the way for the more modern revival of learning.

Mediæval Universities and Colleges.—The term university, as used in the middle ages and at a later date, was very different from the sense in which we now employ it. It usually consisted of a company of learned men, who gave lectures to vast crowds of students on the various topics of the course of study. Often there was no building, nor any thing else to mark its existence, save the faculty and students. The *colleges* were originally lodging halls, endowed by the benevolent for the use of students. Those in the colleges were subjected to certain regulations, restraining them from the riotous conduct then so common among students outside, who were known as "students at large." In time, certain tutors and professors attached themselves to the "colleges," for the purpose of giving special instruction to those who required it, and thus the college of our modern times was developed.

Bacchanten and Schutzen.—In Germany a class of preparatory schools sprang up. It was the custom all over Western Europe for the professors of the various higher institutions to wander from place to place in quest of new ideas or better positions. In time the students began to follow the example of their teachers, and, under the name of *Bacchanten*, they often wandered for many years from one university town to another, too often leading vagrant and lawless lives, studying a little, but devoting most of their time to the sowing of wild oats. They possessed many exemptions from the laws of the countries through which they wandered at will. They seem to have made the

most of these privileges, and as they sometimes traveled in large companies, they became the terror of the citizens. To make matters worse, it was the evil custom of the times for these wandering vagrants to attach to themselves young boys, whom they professed to teach; but their real object in most cases seems to have been to compel these lads to beg and steal for the support of their merciless masters. The boys thus utilized by the Bacchanten were known as the Schutzen, or A, B, C Shooters, and the autobiography of Thomas Platter, a Swiss, at the beginning of the sixteenth century, gives us a most vivid idea of the wretched life of these poor lads as it was then and had been for many years.

Thomas became a Schutz at the age of nine. There were eight in the company to which he belonged, three of whom were Schutzen; and these three were obliged to beg and steal for the support of the other five, who often whipped the little fellows most cruelly, requiring them to eat what was left after their own repasts, and to sleep in the filthy straw of the barns, or in the open air, while they themselves lodged at the inns. The party stopped successively at Nuremberg, Dresden, and Breslau, suffering much from hunger on the road, and eating nothing for days but raw onions and salt, or roasted acorns and crabs, and sleeping in the open air, since none would take them in, and frequently the dogs were set upon them. At Breslau, he says, there were seven parishes, each with its separate school, supported by alms, no Schutzen being allowed to beg outside of their own parishes. At the schools, Bacchanten had small rooms with straw beds, but the poor little Schutzen slept on the hearth in winter, and in the heaps of grass in the church-yard during the summer. When it rained, they took refuge in the school-house. There was such "excellent begging" at Breslau that the

whole party at first were made sick from overeating. The lads were "treated" to such an extent at the beer houses, too, that they were often intoxicated. But the wandering fever soon took possession of the Bacchanten again, in spite of this excellent begging, and they tramped back, first to Dresden and then to Ulm. "Often I was so hungry," says Thomas, "that I drove the dogs in the streets away from their bones, and gnawed them." The Bacchanten now became so cruel that Thomas ran away; and he was often in danger of being recaptured, for his merciless master had no desire to lose so valuable a provider. Finally, after similar experiences with other Bacchanten, he reached Schlettstadt, where he found "the first school in which things went on well." He had now been a Schutz for nine years, *but had not yet been taught to read!*

It is a satisfaction to know that in spite of all this waste of time he now not only learned to read, but in time became a noted scholar and teacher. Even at that late date, we learn from this biography that there were so few books in use that nine Bacchanten studied together in one room —one reading while the rest made written copies. But the printing-press was just coming into use, and from that day on knowledge was rapidly increased in the earth, and the then necessary evil of teaching wholly by lecturing began to wane. Yet so persistent is the force of custom once established that this relic of the mediæval ages still survives to some extent, though the necessity for such waste of time and labor passed away with the incoming of the Age of Books.

ANALYSIS OF CHAPTER VI.

Retrospect of Chapter V.

The necessity of educating as well as humanizing the population of the new old world.

Other reasons why the study of Latin was revived. Hence grammar and the Latin authors are resurrected.

The middle course adopted to render the pagan authors less dangerous—Virgil made to read like a mediæval monk.

Latin authors always read by a few; but the general ability to appreciate them was wanting, even if it had been thought advisable to use them.

Statement from the “Revival of Learning” regarding Greek.

COURSE OF STUDY IN VOGUE: (a) The *Trivium*—grammar, logic and rhetoric. (b) *Quadrivium*—music, arithmetic, geometry, and astronomy. (c) Meagerness of these.

TEXT-BOOKS: (a) Satira—its nature and scope. (b) The works of Cassiodorus and Isidore—their nature and scope. (c) The works of Boethius, and their high character. (d) The works of Bishop Isidore, and their character.

The nature of the schools attached to the monasteries.

THE IRISH SCHOOLS: (a) Thronged by English students. (b) A twelve years' course in the vernacular.

Charlemagne and his influence on the intellectual activity of his age.

The influence of the Danish invasion on the English and Irish schools.

Alfred the Great and his influence on the intellectual life of Great Britain.

ECCLESIASTICAL EDUCATIONAL ORDERS AND THEIR GOOD WORK: (a) Benedictine Monks. (b) The orders of Chartres and Citeaux, with their work in Germany. (c) The Brotherhood of Common Life, and its work in Holland, etc.

School discipline in the middle ages. Female education of this epoch.

The era of schoolmen; its nature and effects.

The terms “university” and “college,” as then employed.

German preparatory schools. Wandering professors and “Bacchan-ten.”

The Schutzen, or “A, B, C Shooters”—Thomas Platter's account of their pitiable lot.

The lecture system then necessary for want of books. Is it necessary now?

SUPPLEMENTARY QUESTIONS.

What can you say of Clovis and his influence in shaping the new civilization? The Venerable Bede? St. Boniface? St. Patrick?

What were the Crusades, and what was their influence on the civilization and education of the middle ages?

What can you say of chivalry and its influence on education?

Who were the troubadours, and what was their influence on education and civilization?

Contrast Europe at the close of the middle ages with its condition at the opening of that epoch.

CHAPTER VII.

THE ITALIAN RENASCENCE AND THE REVIVAL OF LEARNING.

State of Learning at the Close of the Dark Ages.

—We have reached now the time of the birth of the modern world, the rising of the sun of free intellectual activity, the splendid day-star of the Renascence. It is true that light had been slowly increasing in Europe by fits and starts during the later centuries of the dark ages. The Saracen schools had given out a light brilliant in comparison with the surrounding darkness. In the eastern branch of the Roman Empire, founded by Constantine in the fourth century, and lingering on with steadily failing power until Constantinople finally fell into the hands of the Turks in 1453, Greek was still a living tongue, and Greek literature was still studied; an occasional scholar from Constantinople brought a gleam of Greek learning to Italy. It is claimed that Greek was taught in the German universities from the twelfth century onward; among Italian scholars mathematics had made considerable progress, using and improving upon the materials derived from the Saracens, who had learned geometry and algebra from the Greeks and Hindoos. Friar Roger Bacon, in England, had even begun scientific investigations, but he was three hundred years ahead of his time. In philosophy, the subtle but barren disputationes of the schoolmen showed an immense waste of mental acuteness on the most valueless subjects.

The Renascence a Revolution.—The Renascence

was not merely progress along the old lines—it was revolution. It was the emancipation of thought; it was the revival of the lost sense of literary form and artistic beauty; it was an eager thirst for learning, an enthusiasm for fame and literary achievement, kindled by a contact with the two great literatures of the ancient world. During the dark ages the capacity for ideas had become latent. Nothing was of importance but mystical, magical, or ecclesiastical subtleties. "Against this mental misconception, this original obliquity of vision, this radical lie in the intellect," says Symonds, "the Restorers of learning had to fight at least as energetically as against brute ignorance and dullness. To purge the mind of fancy and fable, to prove that poetry, apart from its supposed prophetic meaning, was delightful for its own sake, and that the history of the antique nations, in spite of paganism, could be used for profit and instruction, was the first step to be taken by these leaders of modern progress."

It must not be understood that the middle ages did nothing for human progress: their great work was to Christianize Europe. That Christian ideas came, during the dark ages, to permeate *thoroughly* the human mind and human institutions can hardly be said; we could not say that of the most Christian nation of to-day. But the world had taken a long march beyond paganism. The ideas of the priceless worth and dignity of the human soul, and of man's accountability for his fellow-man's spiritual welfare, were deep in the heart and conscience of the mediæval world.

Of "the Fatherhood of God and the Brotherhood of Man" they had at least a partial conception. This is strikingly illustrated by the way Strabo and Columbus looked at the same conjecture. Strabo, about the beginning of the Christian era, guessed that there might be

populous islands in the other hemisphere, yet added indifferently: "But these speculations have nothing in common with practical geography, and if these islands exist, they can not support peoples of like origin with us." But in Columbus's soul of fire, after fifteen centuries of the humanizing influences of Christianity, this same conjecture awakened a consuming anxiety to reach those possible islands and win their benighted inhabitants to the better life.

Mission of the Italian Renascence.—The Renaissance began in Italy; but the Italian Renascence preceded the English by nearly two hundred years. In its national condition, Italy at this time resembled ancient Greece. It was not a nation—the national idea was coming into being in the other countries of Europe, but Italy, like Greece, was a number of brilliant, ardent, wealthy, independent cities, in a state of eager rivalry with one another. In these mediaeval republics, birth and rank were of little advantage. The prizes of life fell to men of ability and knowledge. Even the humblest had the utmost possible inducement to make all he could of himself.

To these eager minds, the dispersion of Greek scholars, consequent on the imperiled condition of the Eastern Empire, slowly falling piecemeal into the grasp of its Moslem foes, brought just the mental food they needed.

There were many forces that worked together to produce the Renascence, but in Italy, at least, the main cause was the recovery and study of the Greek and Latin classics, aided by the ever-present object lessons of the grandeur of Roman architecture and the loveliness of Greek sculpture. Besides, Italy felt herself the heir of Roman greatness. She did not look forward, as she has so successfully done in our day, to a new, united Italy, but back to Rome. To her consciousness in the fourteenth and fifteenth centuries,

her true and only path of national development was in the line of reviving the glory of Rome.

The Italian Renascence was not so various, in either its causes or its effects, as was the same movement in northern Europe; it had neither the religious nor the nation-making force that it had at the north. The one great mission of the Italian Renascence was to acquire and to transmit to Europe a knowledge of the classics.

"At the critical moment when the Eastern Empire was being shattered by the Turks, and when the other European nations were as yet unfit for culture, Italy saved the arts and sciences of Greece and Rome, and interpreted the classics. It is impossible to exaggerate the benefit conferred upon Europe by the Italians at this epoch. The culture of the classics had to be reappropriated before the movement of the modern mind could begin; before the nations could start on a new course of progress, the chasm between the old and new world had to be bridged over. This task of reappropriation the Italians undertook and achieved alone. It was effected by long and toilsome study, by the accumulation of manuscripts, by the acquisition of dead languages, by the solitary labor of grammarians, by the lectures of itinerant professors, by the scribe, by the printing-press, by the self-devotion of magnificent Italy to erudition."—*Symonds*.

Dante and the Italian Language.—Before considering farther the Italian Renascence, let us go back a step to the great poet who forms the connecting link between the mediæval and the modern world. Dante was born in 1265; he began his *Divine Comedy* with the fourteenth century; and he is the first great man of the modern, as well as the last great man of the mediæval world. Besides writing one of the few masterpieces of all time, besides preserving for us in his imperishable pages both the soul and the outer form of the mediæval world, he created, as one might say, the Italian language. Before him it was supposed that Latin alone was a fit instrument for literary use; but he took

the despised language of the people, rude, unformed, unpolished, wrote in it his mighty epic, and evolved the musical and majestic Italian tongue.

In the latter part of the same century another great poet, born and bred in a distant land, but trained by Italian travel and Italian learning, performed the same great service for *his* mother tongue. Thus, Chaucer, a true son of the Italian Renascence, almost two centuries before the English Renascence, created out of a barbarous medley of Norman-French and Anglo-Saxon the English language; and when the English Renascence at last came, its poets found this magnificent instrument ready to their hand.

The Italian Renascence had no religious tendency. It was distinctly worldly in its tone, joyous and tolerant of all opinions. Its professors were so imbued with their classic studies that they had a way of expressing their religious sentiments in the terms of the old mythologies, but the Church well understood that their paganism was only on the surface. As for their morality, the less said the better; it was that of their race and time, and what that was students of history well know.

Petrarch, poet and scholar, was the apostle of the Renascence, and fired his countrymen with his own burning zeal for the study of the Latin masterpieces.

Rescue of Ancient Manuscripts.—The first duty of the lovers of the new learning was to discover and rescue the precious manuscripts lying neglected in convent libraries. Too often they were found covered with rust and mold, lying in rooms with broken windows and unfastened doors, whatever pages had been blank on one side appropriated to write psalters on, and their margins clipped off for amulets.

To find and obtain a copy of some old classic, no journey was too long and perilous, no privation or fatigue was ac-

counted worth considering, no price was extravagant. The heaviest disappointment of a scholar's life was when he thought himself about to recover a manuscript of Livy or Tacitus, and failed.

The so-called universities of the day were like those of Germany, mentioned in Chapter VII., only assemblages of teachers and pupils, without buildings or apparatus, and almost without books. The salaries of the teachers were—to some extent—paid by the city which was the proud possessor of the university; and when the payment was not satisfactory, the university brought the penurious town council to terms by walking off bodily to some rival city. These universities taught chiefly law, theology, and medicine. When they came to have a teacher of the classics attached, he was rated lower than the regular faculty. To teach a Latin author to pupils who had no text, no lexicon, no grammar, no histories or classical dictionaries, the teacher was obliged first to dictate the text to his pupils, then add the whole grammar, the definitions, the prosody, the historical and critical comments, and whatever else might be necessary for its mastery. There were no longer slaves to copy books, as in imperial Rome—all honor to mediæval Christianity for the fact—and books were excessively scarce and dear—about fifty cents a page, which is about the same as \$2.50 a page would be in our time, with the depreciated purchasing power of money. The copyists, too, were ignorant and careless, and their work painfully in need of a proof-reader.

Introduction of Greek.—Against all difficulties the classic learning made its way. For nearly the whole fourteenth century, however, the Latin alone was studied. Finally, in 1396, the republic of Florence invited Chrysoloras, a learned Greek of Constantinople, to take a chair in its university, and paid him a liberal salary. "Thus," says one

of his pupils, "after being lost for seven centuries, Greek learning returned to Italy." Pupils crowded to his lessons with an enthusiasm that our age can not comprehend. After a surfeit of knowledge for four hundred years, this age can not even guess at the starved eagerness of the Renascence. The student before mentioned gave up his law studies to devote all his time to Greek, reflecting that there were Doctors of Law in every city, but that Chrysoloras was the only competent teacher of Greek in Italy. This student devoted himself to Greek with such ardor that he dreamed all night of what his teacher taught him by day.

"The scholars who assembled in the lecture rooms of Chrysoloras felt that the Greek texts of which he alone supplied the key contained those elements of spiritual freedom and intellectual culture without which the civilization of the modern world would be impossible, nor were they mistaken in what was then a guess rather than a certainty. The study of Greek implied the birth of criticism, comparison, research. It opened philosophical horizons far beyond the dream-world of the churchmen and the monks, it stimulated the germs of science, suggested new astronomical hypotheses, and indirectly led to the discovery of America."—*Symonds.*

In spite of this honorable example of the University of Florence, the universities generally did not receive the new learning with any great cordiality. The "humanist" professor, as he was called, held a less permanent position and received a lower salary than the regular faculty of law, theology, and medicine.

It is curious to reflect that there ever was a time when the classics were an innovation, and were frowned upon by the conservative devotees of practical studies. But the classics have turned the tables since then with a vengeance; and it is equally curious to reflect that from the revival of learning down to within the memory of men still living, Greek and Latin were the end and aim of education, and

the study of English and the physical sciences was frowned upon by the conservatives as an innovation! How far the force of intellectual inertia may now carry the swinging pendulum to the opposite side remains to be seen.

The Revival of Learning developed not so much in the old universities as in the courts of liberal and accomplished princes, who were themselves among its most eager and successful students. The nobles of France and England, at this same time, could scarcely write their names.

For another century the great work of scholarship went on. In the middle of the fifteenth century, so high had the esteem for classic learning risen that one of its leading professors was chosen Pope. He began the magnificent Vatican library, still the richest depository in the world of classic manuscripts, making what was then a noble collection of five thousand volumes. Before the close of the century, another Italian, revolving in his mind, with the fiery imagination of the Renascence, vague hints and theories of the classic writers, had come to the fixed conclusion that "the merry world was round," had sailed on his adventurous voyage, and had discovered the most momentous secret of the earth—the New World—

"Hid of old time in the west."

Before the close of this century, too, the great invention of printing had multiplied infinitely the means and the opportunities of scholarship. All things were ready for the sixteenth century, with its revival of learning all over Europe, with its dawn of scientific research, and with its poetry :

" Those melodious bursts which fill
The spacious times of great Elizabeth
With sounds that echo still."

The Renascence and the Fine Arts.—Meanwhile, what, aside from its great mission of recovering and trans-

mitting classic learning, had the Italian Renascence accomplished? It produced no great original literature, as in Spain and England. Petrarch was its first and best poet, and he was far below Dante. Literary capacity was over-weighted with scholarship, and declined into mere correctness and elegance of manner. In the fifteenth century, the language "created by Dante as a thing of power, polished by Petrarch as a thing of beauty, trained by Boccaccio as the instrument of melodious prose," was abandoned for literary purposes, and the greatest ambition of every author was to write Latin and Greek with classic purity and elegance.

The great original achievement of the men of the Italian Renascence was in the fine arts. In decorative art of all kinds, in architecture, in sculpture, they showed their splendid genius; but it is in the art of painting that they won their special preëminence, and stand unrivaled and unapproached.

ANALYSIS OF CHAPTER VII.

THE DAWN OF THE RENASCENCE: (a) The gloom of the "Dark Ages" becomes less dense. (b) Light from the Saracen schools. (c) Learning preserved in the Eastern Empire. (d) Mathematical progress in Italy. (e) Friar Roger Bacon. (f) The scholastic philosophy.

THE RENASCENCE NOT MERELY A GROWTH, BUT A REVOLUTION: (a) What the restorers of learning had to contend against. (b) The mission of the middle ages. (c) Progress of Christianity illustrated by the views of Strabo and Columbus.

THE ITALIAN RENASCENCE: (a) Political state of Mediæval Italy. (b) The immigration of Greek scholars. (c) Object lessons in ancient art. (d) Italy the heir of Rome. (e) Her mission to save and transmit ancient learning. (f) Dante and Chaucer. (g) Italian Renascence had no religious tendency. (h) Petrarch. (i) The rescue of ancient manuscripts. (j) The migratory universities. (k) Teaching without books. (l) Scarcity and expensiveness of books. (m) Chrysoloras. (n) Conservative opposition of the universities. (o) The courts of learned

princes. (*p*) The Vatican library. (*q*) Columbus. (*r*) The invention of printing. (*s*) Aside from erudition, the achievements of the Italian Renaissance were not in the line of literature, but in that of art.

SUPPLEMENTARY QUESTIONS.

What can you say about palimpsests?

What can you say of the Vatican library of the present time?

What is the subject of Dante's Divine Comedy?

How can you show from this work that Dante, in the beginning of the fourteenth century, had correct notions of the shape of the earth, and of terrestrial gravity? (See "Inferno," canto 34.)

CHAPTER VIII.

THE ENGLISH RENASCENCE AND THE EDUCATIONAL PROGRESS OF EUROPE IN THE SIXTEENTH CENTURY.

Summary of the Sources of Modern Civilization.— It may be said that the causes which led to the evolution of modern civilization were all in operation by the dawn of the sixteenth century. They may, perhaps, be reckoned as follows:

1. The general Christianization of Europe.
2. The Crusades, which subjected a large proportion of the population to the broadening and enlightening influences of travel, and brought back to Europe much of the knowledge and culture of the East.
3. The invention of the mariner's compass, with the consequent discovery of the water route to India, and of the New World.
4. The breaking down of feudalism, with its oppressions. It was in England alone, however, that this beneficent change had been fully accomplished, though the system everywhere showed signs of decay. In France it lingered until it disappeared in the great explosion of the French Revolution one hundred years ago.
5. The rise of the nations of modern Europe, and the breaking up of the old state of things, wherein everything was controlled by the two central powers—the Church and the Empire.
6. The invention of gunpowder. Gunpowder is a great equalizer: it made one man as good as another for fighting

purposes, and forever destroyed the ascendancy of the robber barons, whose stone castles and steel armor had enabled them to lord it at will over the community.

7. The rise of the great commercial cities, which accumulated wealth, and afforded centers of refinement and education.

8. The revival of the study of the classics.

9. The progress of the vernaculars of Europe to the status of written languages. At the beginning of the sixteenth century Latin was still the language of the learned world, but the vernaculars also had acquired the dignity of written tongues. Besides the poems of Dante and Petrarch and the prose of Boccaccio in Italy; the poems of Chaucer, and Wycliffe's translation of the Bible in England, there had been works of less dignity composed in the popular languages for the popular ear—such as the poems of the troubadours and trouveres in Provence and France, of the Minnesingers in Germany, of the minstrels and ballad makers in Great Britain. The great mediæval epic of the Nibelungen Lied in German and Norse, the Icelandic Eddas, and the cycles of Romance legends clustered around the names of King Arthur and Charlemagne, must also be named in this connection. So that, upon the whole, the way was well prepared for the general use of modern languages for literary purposes in the sixteenth century.

10. The invention of printing.

In the time of the Renascence, or just preceding it, the great nations of Europe* each contributed some special gift to the foundations of modern civilization, as follows:

Italy.—Classic learning and the fine arts.

Holland and Germany.—The invention of printing.

* Europe, in these chapters, is commonly used in its historical sense, which did not until quite recent times include Russia,

Portugal.—The discovery of the ocean route to the East Indies.

Spain.—The discovery of America.

England.—The Elizabethan drama and inductive philosophy.

France.—The first great prose literature of modern Europe.

Poland.—In the person of her great son, Copernicus, proved to the world the marvelous truth that the sun, and not the earth, is the center of our system.

It must not be understood that the particular nation to which each of these discoveries, etc., is assigned enjoyed in all cases a monopoly of its contribution. The revival of learning, for example, was common to Europe, but Italy took the lead. Spain, also, developed a national drama, inferior to the English, but still of brilliant quality and great extent.

There was one momentous change in matters educational which came to pass in many of the states of the north of Europe—the general attempt made to teach the lower classes to read and write. Schools for *all* the children of the community began to be established in these countries.

Having thus summed up some of the causes and the benefits of the Renascence, it may be well to inquire what were its gifts to the future; what living seeds did it implant, to spring up and bear fruit in our own age?

These may be accounted two: freedom of thought and the spirit of scientific research. It may be said that the causes of all that makes our lot so superior to that of our ancestors may be found in these two sources, together with the ever-extending leaven of Christianity.

Before the close of the fifteenth century, Italian scholars were lamenting that learning had already left Italy and fled beyond the Alps to Germany.

The Invention of Printing.—The middle of this century saw the great invention which was to make learning and literature the possession of the many instead of the few. Long before this time, books had been made by cutting a page, both pictures and words, on a block of wood, and printing impressions therefrom. Copies of such “block-books” are still extant. This was really a kind of rude wood-engraving, but the invention was never extensively used.

What man or nation can claim the honor of making the great advance to movable types has been long in dispute, but the latest edition of the Encyclopædia Britannica, after an exhaustive examination of the evidence, decides that printing was invented by Laurens Coster, in Harlem, Holland, about the year 1445; that it was carried to Mayence (Mainz), Germany, by his apprentice, Gutenberg, in 1450, was there much improved, and was then speedily introduced into all the leading cities of Europe. The oldest specimens of printing extant are two copies of an indulgence, granted by Pope Nicholas V. in behalf of the kingdom of Cyprus, printed at Mayence in the year 1454.

Tradition says that wooden types strung on threads were first used; but whether this be true or not, the use of metal types was very early introduced. At first every apprentice of the new art, when he mastered his trade and went to some other town to practice it, carried with him no type or molds, but made his own molds and cast his own type, in imitation of the handwriting he was to copy. It is said that *Italic type* originated by copying Petrarch’s handwriting. In order to need only a small font of type, it was customary to print but one page at a time, though by the year 1477 the art of printing was generally diffused throughout Europe. The most famous of the early printers, both for elegant workmanship and for their profound

interest in the spread of learning, were the Aldi, in Venice, and the Caxtons, in England. "In the last thirty years of the fifteenth century, ten thousand editions of books and pamphlets are said to have been published throughout Europe—the most important half of them in Italy—and all the Latin authors were accessible to every student before it closed. Almost all the more valuable authors of Greece were published in the first twenty years of the century which followed."

The English Renascence.—The light of the new learning was now spreading fast beyond the Alps. England possessed what might be called, compared with the state of the rest of Europe, freedom, stable government, and peace. It was in England, therefore, that the northern Renascence reached its fullest development.

In the fourteenth century England had seemed, as before indicated, to be starting out on a great development of literature and learning. Not to dwell further upon the glorious dawn of poetry in Chaucer, to translate the entire Bible from the Vulgate into the vernacular, as Wycliffe did, was a stupendous feat, both of learning and literary ability, for that age; but the Hundred Years' War put an end to all these fair prospects. At the dawn of the sixteenth century, although England possessed her two famous old universities, as well as a number of schools of lower rank, such as Eton and Winchester, yet the learning taught in them was as lifeless and meager as that of Italy in the thirteenth century. Then Grocyn, a fellow of Oxford, went to Italy, studied Greek, and returned to Oxford to teach it. His example was followed by Linacre and Colet, and before 1520 Oxford was full of the new learning. The young Erasmus, destined to be one of the great scholars and educational reformers of the century, had gone from his native Holland to Paris, hoping to reach Italy and

study Greek; but despairing of reaching Italy, he went to Oxford, as the only other place where the learning he so longed for could be gained. He "had given up his whole soul to Greek learning." He learned Greek, wrote new grammars embodying a more rational system of instruction in the classics, and became a teacher at Cambridge. To the old scholastic curriculum of the university had now been added mathematics, Aristotle in his original form instead of his mediæval travesties, and Greek literature; and students came in crowds. Says an eye witness: "The students rush to Greek letters; they endure watching, fasting, toil, and hunger in the pursuit of them."

There were conservatives, of course, who opposed the new learning; and Henry VIII. sent for a Cambridge preacher and rebuked him for the intemperate zeal with which he preached against it. At Oxford the students had actual fights over it, in which the combatants styled themselves Greeks or Trojans, according as they were for or against the Greek learning. But the struggle was soon over; the new learning triumphed on every hand, and new schools sprang into being every day. More grammar schools were founded within a few years than in the three preceding centuries. Even so obscure a town as Stratford-upon-Avon had one of these institutions, where Shakespeare gained that "little Latin and less Greek" for which the scholarly Ben Jonson felt a contempt like that of an Eastern university of to-day for a backwoods college—yet the backwoods college sometimes turns out great men, notwithstanding.

But the founding of new schools, the study of Greek, improved methods of instruction—these in themselves are small things after all. The great thing was the wonderful awakening of mental life which followed "the burst of the two great classic literatures upon the world." "For the

first time," says Taine, "men opened their eyes and saw." They saw life, and reproduced it in the most splendid dramatic literature of the world; they saw nature, and began to study it; ay, and one man at least saw the future. In Sir Thomas More's "Utopia,"* he anticipates the modern world. He deals with the labor question, which men have yet been able to settle *only* in Utopia; he dreams of the reform of criminal law, of cities built in accord with sanitary laws, of universal free education, of perfect religious toleration—and the modern world is living out his dreams.

Educated Women.—Another evidence of the emancipation of thought and enthusiasm of learning in this age is the number of highly educated women we find. Court beauties who, two hundred years later, were considered all-accomplished if they could "spell well," were now diligent and successful students of Latin and Greek. Lady Jane Gray, of tragic fate, at the age of sixteen could not only read, but speak and write, Latin and Greek, besides French and Italian. Queen Elizabeth, as is well known, was an accomplished Greek and Latin scholar, while both Mary of England and Mary of Scotland had a good knowledge of Latin. In the Italian universities, with their extremely high standard of classic scholarship, lady professors were not uncommon. The University of Ferrara appointed Olympia Norata a lecturer on the classics at the age of sixteen. The same lady afterward translated the Psalms into Greek verse.

Bacon and Modern Science.—One more person, representing a special tendency of this age and exerting an immeasurable influence upon our own, must be named—Francis Bacon, styled the father of inductive philosophy and of modern science. It is sometimes asked why, as

* An imaginary country called Utopia—*i. e., Nowhere.*

Bacon made no scientific discoveries himself, and as the particular form of induction developed in the *Novum Organum*, which seemed to him an infallible instrument for the discovery of truth, has never, in fact, been used, nor is it capable of practical use. Yet, after all, the popular instinct that makes him the spiritual father of science is true. The actual work has been done by specialists, by men of less imperial powers than his, but who concentrated their abilities on some one point of the vast field. If the instrument that he devised for the investigation of nature shows that he knew too little of nature to rightly formulate the method of its study, yet the *inspiration* of scientific study comes from him. The true object of philosophy, he taught, is to increase our knowledge or to add to our power. The systems of the schoolmen did little of either. Let the wise men of the earth strive to gain knowledge which will help their fellow-men; let man, the thinker, aid man, the laborer; let him investigate the secrets of nature that he may wield her powers; let him seek learning, not to satisfy curiosity, or to win reputation, or to acquire wealth, but as "a rich store-house, for the glory of the Creator and the relief of man's estate." This, then, is Bacon's glory: that in an age when the learned world thought learning meant Latin and Greek, he, the wisest, broadest, most comprehensive intellect of his time, pointed out as the true field of study that which should subject the powers of nature to man's use. The power-loom, the sewing-machine, the self-binder, the steam-engine, the locomotive, the telegraph, and the telephone—these are but a few of the alleviations of labor and of the life of our common humanity that have been found in the path he pointed out.

Elizabethan Literature.—Before we leave the subject of the general educational influences of the English Renaissance, a few lines must be given to the Elizabethan litera-

ture. Thus far the progress of education has seemed to be inseparable from that of literature; but beyond this period, as education becomes a science by itself, we shall consider literature no more.

It was not the letter that killeth, but the spirit that maketh alive, that English authors caught from the revival of learning. Their poetry has in it the note of splendid and triumphant achievement of that age that had not only rediscovered

“The glory that was Greece and the grandeur that was Rome,” but had discovered the virgin world of the West, teeming with wealth, and still more with romantic possibilities; of the people who had conquered the Invincible Armada, and saw in all Europe no power that they should fear.

Great poems have been written in the English language since that day, but none so full of the joy of existence, none with the spontaneous fire and fervor, none with the indescribable richness, sweetness, and ringing melody of rhythm.

The very highest point of literary achievement is the development of a great national drama. But twice in the history of the world has this consummate flower of poetry and national life bloomed in its perfection—once in the Athens of Pericles, and once in the England of Elizabeth.

ANALYSIS OF CHAPTER VIII.

Summary of ten causes which led to the development of modern civilization.

Special contributions of different nations of Europe to the glory of the Renascence.

The revival of learning common to Europe.—Two germs of growth implanted in the future.

THE INVENTION OF PRINTING: (a) Who was the inventor, Coster or Gutenberg? (b) Earliest specimens of printing extant. (c) Every printer his own type-founder. (d) Imitation of handwriting. (e) Print-

ing one page at a time. (f) The Aldi and Caxtons. (g) Progress in printing the Latin and Greek authors before 1520.

THE ENGLISH RENASCENCE: (a) Comparatively peaceful state of England. (b) Chaucer and Wycliffe. (c) Introduction of Greek learning from Italy. (d) Grocyn, Colet, Linacre, Erasmus. (e) Enthusiasm of students. (f) Opposition. (g) New grammar schools. (h) New life of the age. (i) More's "Utopia." (j) Learned ladies. (k) Bacon and the inductive philosophy. (l) Elizabethan literature.

SUPPLEMENTARY QUESTIONS.

What effect did the invention of printing have on spelling? What on the price of books? How did it encourage authorship? What is the earliest great poem of the Elizabethan period, and who is its author? Whom does the "Faerie Queene" there described represent?

Why was the drama more of an educational force in that day than in our own? What subject were many of Shakespeare's plays especially adapted to teach? Who was Ben Jonson, and for what is he famous?

CHAPTER IX.

EDUCATIONAL REFORMERS.

✓ IN the general intellectual eagerness and activity of the Renaissance attempts at reforming the old methods of instruction were to be expected. Accordingly, from the sixteenth century on, we find a succession of writers and teachers who lay down for the guidance of the profession more excellent methods of teaching. For hundreds of years there is a succession of these voices crying in the wilderness of dreary rote-teaching of unexplained Latin grammar, pleading for more sensible methods of instruction in the classics, and later for a wider range of education. Small effect they had in their own time on the generality of schools, but in our age their ideas have begun to bring forth fruit. "Other men labored and we are entered into their labors." There is little in the latest educational theories—in the much-vaunted "Quincy Methods," for instance—whose germs may not be found in the writings of these old-time reformers.

The Jesuit Schools.—Before considering the history and theories of individual reformers, let us glance at the one systematic and thoroughly organized, wide-spread system of schools which was known to the seventeenth and eighteenth centuries—that of the *Jesuits*. By virtue of their compact organization and thorough supervision, whatever of excellence there was in one of their schools was shared by all. When the Society of Jesus was first formally recognized by a Bull of Paul III., in 1540, the education of

boys was assigned as one of its special objects. From various Popes it obtained powers for founding schools and colleges, for granting degrees, and for lecturing publicly at universities.

In 1584, the General of the Order appointed a school commission consisting of distinguished Jesuits from the various countries in Europe. This commission was in session at Rome for almost a year, and it drew up the code of government and course of instruction by which the Jesuit schools have ever since been controlled. This code and course of study were never even revised until the present century.

A Jesuit went through an eighteen years' course of study and training before he was admitted to full membership. From four to six of these preparatory years were spent in teaching primary classes. The teacher began with the lowest class and went up the school with it. Certain classes, however, were instructed by professed members, who taught the same grade year after year. Pupils were not received younger than fourteen years, nor older than twenty-four. Instruction was gratuitous, but those who were able paid the cost of their board. There were five classes (later increased to eight), one year each being assigned to the four lower grades, and two years to the highest grade. The school hours were remarkably short for that time—two and a half hours in the forenoon and the same in the afternoon, with a full holiday each week.

To teach by repetition was a leading principle. The master, when he assigned a lesson for the next day, went over the whole with the class, *teaching* it to them. The next day they recited—wrote translations, construed, parsed, etc. Reviews were incessant, one day each week being devoted to this purpose. There was a grand final review and examination at the close of each term, and finally, in the three lower

classes, the latter half of each year was devoted to a review of the studies of the preceding half. Exceptionally bright pupils could thus take this lower course in a year and a half.

Great pains were taken not to weary or overtire the pupils. Thoroughness was insisted upon, but the lessons were very short—in the lower grades, only four lines of a Latin author per day. The discipline was gentle, the rod being reserved for the most extreme cases—all of which is in happy contrast to the brutality of mediæval schools, and even of English ones down to a very recent date. The teachers were enjoined to win the love of their scholars, and to watch carefully over their health.

Great use was made of the principle of emulation, each pupil having a professional rival appointed him. Prizes, medals, and rewards of all kinds were lavishly offered. Each class was separated into divisions called Rome and Carthage, which held periodical contests with each other.

Mr. Quick, from whose admirable work this account is mainly condensed, querying as to the cause of the great success and popularity of the Jesuit schools, thinks that one chief reason may have been that they worked to a definite end—they had just so much to do, and they were then through—unlike English grammar schools, where there is no special limit. It will be noticed that in this respect, as in many others, the Jesuit schools resembled our American graded school. The principle of emulation, for instance, is strongly appealed to by our system of ranking according to averages; our hours of school and methods of discipline are much the same; the frequent reviews are another point of resemblance; while the arrangement of classes is like that in such of our schools as use half-yearly grades—with this difference: with us it is the exception, not the rule, for a pupil to take each grade twice. The thorough supervision of the teachers, and the strict adherence to system

and uniformity in class work, were also like our schools, and strikingly unlike the English. The results sought and obtained must also have resembled those of a graded school —viz.: the bringing of all the pupils, by persistent drill, to a uniform standard of acquirement.

In the practice of espionage, elevated into a system in these schools, it is to be hoped our schools have no share. In the age of the pupils taught, and in the course of study pursued, the Jesuit schools differed widely from ours.

The course of study, aside from the characteristic theological and ethical training of the Jesuits, was almost exclusively Latin, some Greek, and a very little mathematics taught in the higher grades. The pupils were required to converse in Latin as far as possible. Reading and writing the vernacular was not permitted to be taught except by special permission of the Provincial, an officer next in rank to the General of the Order. It is likely, however, that the pupils, at the age at which they were admitted, were supposed already to have acquired this knowledge.

The aim of the Jesuit schools was not to cultivate judgment or independent thought—the latter, indeed, they aimed to suppress. Neither was it their design to furnish their pupils with scientific or practical knowledge. They trained principally the verbal memory and dialectical readiness; they aimed merely to make brilliant Latinists and fluent rhetoricians. But, such as these schools were, they were long the most flourishing and popular, and, in some respects, the best in Europe. The wisdom of the council that elaborated a system in many respects so excellent, and so far in advance of its age, commands our admiration. The great fault of the system was that it failed to advance with the age, and its once vigorous life became fossilized.

Let us now consider some of the more prominent Edu-

cational Reformers, from the Renascence down to our own times.

From the first introduction of the New Learning into Northern Europe, efforts were made to improve the methods of instruction in the classics. Liby, Colet, and Erasmus wrote improved grammars, while Cardinal Wolsey recommended sensible methods. Ascham's "Scholemaster," the first work on pedagogics in the English language, recommended teaching Latin and Greek by translating the classic author first into English, then back into his own language. This method ought to have become fashionable, as Queen Elizabeth acquired her much admired scholarship under Ascham's teaching. Many were the teachers, writers, and thinkers who labored to introduce rational methods into Latin teaching, but without affecting the schools in general. The method in vogue even down to our own century—wearisome and mechanical to the last degree, consisting largely of repetitions of grammatical rules, *themselves written in Latin*—may best be appreciated by reading the vivid descriptions in Erckmann-Chatrian's "College Life of Maitre Nablot."

Scientific Discoveries.—But while the Jesuits and all the other teachers of Europe were concerned only as to how they might best teach the classics, great thinkers in the different countries of Europe were making those brilliant discoveries which constitute the beginnings of modern science. Copernicus's great discovery of the true relations of the sun, moon, and earth has already been mentioned. Three great men carried on his work. Galileo, in Italy, invented the refracting telescope, the same in principle as the magnificent instrument recently made for the Lick Observatory. By its aid he discovered the satellites of Jupiter and the spots on the sun, showing its rotation on its axis, and confirming the theory of Copernicus. Tycho Brahe,

the Dane, spent his life in the observation of the heavenly bodies. He seems to have been a great observer rather than a great reasoner, but associated with him was Kepler, the German, who was a reasoner indeed. He discovered that the planets move around the sun in ellipses, not in circles, and demonstrated the three laws of planetary motion which have ever since been known by his name. He also *almost* discovered the law of universal gravitation, a discovery which, fifty years later, became the crowning glory of Sir Isaac Newton's splendid contributions to science. Nor was it in astronomy alone that great advances were made. Galileo discovered the laws of the pendulum's vibration, and the true laws of falling bodies, after Aristotle's fallacious ones had been accepted without question for nearly two thousand years; he partly understood atmospheric pressure, and he invented a thermometer. Napier, a Scotchman, gave to the world his great invention of logarithms, by which the profound mathematical calculations of modern astronomy and physics became possible. The English biologist, Dr. Harvey, made the first great physiological discovery since the times of the ancients. He found out the true course of the double circulation of the blood, the office of the heart, and, in fact, all that we now know on this subject, except about the capillaries. He even *inferred* their existence, but could not actually find them, for lack of the compound microscope, not yet invented.

The Innovators.—With all this burst of scientific enlightenment, not to speak of the daily growing knowledge of geography brought back from distant lands and seas by explorers and adventurers, it is not strange that it began to occur to some advanced men that the modern world had something to learn besides Latin and Greek. Hence arose the class of educational reformers whom Raumer, the German historian of education, calls the Innovators.

According to Mr. Quick, the chief demands of the Innovators have been in substance: 1st, that the study of *things* should precede or be united with the study of *words*; 2d, that knowledge should be communicated, where possible, by appeals to the senses; 3d, that all linguistic study should begin with that of the mother tongue; 4th, that Latin and Greek should be taught to such pupils only as would be likely to complete a learned education; 5th, that physical education should be attended to in all classes of society for the sake of health, not simply with a view to gentlemanly accomplishments; 6th, that a new method of teaching, framed "according to nature," should be adopted.

Their notions of method have, of course, been very various, but their systems mostly agree in the following particulars: (1) They proceed from the concrete to the abstract, giving some knowledge of the thing itself before the rules which refer to it. (2) They employ the student in analyzing matter put before him, rather than in proceeding systematically according to rule. (3) They require the student to *teach himself* under the supervision of the master, rather than to be taught by the master, or receive anything upon his authority. (4) They rely on the interest excited in the pupil by the acquisition of knowledge, rather than on coercion. (5) Only that which is understood should be committed to memory.

Montaigne.—Montaigne may be considered one of the first Innovators. It may seem hardly fair to reckon a mere gentleman of leisure and essayist among those strenuous souls "of whom the world was not worthy," who have devoted themselves with unsparing enthusiasm to the work of educational reform. But this is the usual order of progress. There comes at last the man of action, of convictions, of fanaticism, perhaps, who forces the world to consider, to combat, and finally to accept the ideas which

many thinkers and writers before him have formulated and elaborated. Montaigne stands indubitably in the order of intellectual succession, and is as much the precursor of Rousseau as the latter is of Pestalozzi and Froebel. He would discard grammatical teaching in language, as was done in his own case; would have the child study things rather than words; would try to teach him to think, to find things out for himself, to educate himself. He would also pay great attention to physical training. ✓

Ratich.—In the early years of the seventeenth century there was a man named Ratich traveling through Europe, offering to sell to princes and universities the secret of an educational method whereby any one, young or old, might learn with ease and in a very short time any tongue, dead or living. He was also willing to found a school, wherein all the arts and sciences might be rapidly learned and advanced. He also held himself ready to take a contract to introduce and peacefully maintain throughout Europe a uniform speech, government, and religion! Archimedes's offer to move the world if anybody would supply the fulcrum, was a mere bagatelle compared to what Ratich proposed to accomplish.

He seems, however, though eccentric, not to have been a mere impostor. His honesty is shown by his refusal of Prince Maurice's offer to engage him, and pay the expenses of his school, provided he would confine himself to teaching Latin. Many great and wise men were impressed by his arguments. Helvicus declared that Ratich was right—we should study our own language and the sciences, instead of confining ourselves to Latin. The town of Augsburg employed him to reform its schools; two princes afterward united to give him a school of his own, with everything he wanted in the way of apparatus,

etc. Neither of these experiments succeeded. Once more it was shown that there is no royal road to learning. His system was not practical, but in some of his theories he largely anticipated later reformers. Among his maxims were: "Everything after the order and course of nature; one thing at a time; one thing again and again repeated; nothing shall be learned by heart; knowledge of the thing itself must be given before that which refers to the thing; everything by experiment and analysis; the rod should never be used to enforce learning, but to correct offenses against morals only."

Milton.—The renowned name of John Milton is enrolled on the list of pedagogues. He not only taught, but wrote a famous tract on Education. But the course of study he lays down is adapted only to the needs of intellectual giants, and need not detain us, save to remark that it was as full and complete on the practical as on the literary side.

ANALYSIS OF CHAPTER IX.

Small effect of the labors of the early reformers on the generality of schools in their own time.

THE JESUIT SCHOOLS: (a) Only organized system of their time. (b) The School Commission of 1584. (c) The Jesuit teachers. (d) Age of pupils—gratuitous instruction. (e) Grades and school hours. (f) Teaching by repetition. (g) Length of lessons—discipline. (h) Emulation. (i) Definite course of study. (j) Parallel between the Jesuit schools and our own. (k) Course of study and aim of the schools.

INDIVIDUAL REFORMERS: (a) Lily, Colet, Erasmus. (b) Ascham's "Scholemaster." (c) Persistence of mechanical methods in the Latin schools—illustrated by *Maitre Nablot*.

PROGRESS OF SCIENCE: Copernicus, Galileo, Tycho Brahe, Kepler, Napier, Harvey.

THE INNOVATORS: (a) Their demands. (b) Their methods. (c) Montaigne. (d) Ratich—his extravagant promises—his theories and his practical failure—his maxims. (e) Milton.

SUPPLEMENTARY QUESTIONS.

What was the ancient belief in regard to the circulation of the blood and the use of the arteries? Before Harvey's time, what was considered the function of the liver in circulation? What that of the heart? Was it known that the right and left sides of the heart do not communicate?

What is meant in England by a "Public School," such as those of Rugby, Eton, etc.? What is the principal study in these schools?* In the Universities of Cambridge and Oxford?

Do you think, under these circumstances, there has been reason for the revolt against the old education in England?

Has there been any such emphatic reason for protesting against the study of classics in the United States?

* One of the writers who have been urging less exclusive classical education in England declares he happened to discover one day that an Eton boy, who stood well in an advanced class, had never heard of the multiplication table; but having bought six pairs of silk hose at seven shillings each, knew no way to ascertain their cost but by adding 7 six times!

CHAPTER X.

EDUCATIONAL REFORMERS—CONTINUED.

Comenius.—We come now to John Amos Comenius, one of the greatest names in the history of education. He was born near the close of the sixteenth century, in the Moravian village of Comna, became Chief Bishop of the Moravian Brethren, lived a life of tireless activity to the age of eighty years, and was, in addition to his extensive pastoral duties, a practical teacher and a voluminous writer on educational and philosophical subjects. He was the first in the modern world to bring to the work of educational reform both the trained skill of an experienced teacher and the philosophical breadth and depth of a great metaphysician.

During the Thirty Years' War he lost his property, his wife and child, and was finally banished from his country for political reasons. He then took refuge in the Polish town of Leszno, and became a teacher in the Moravian school there. While thus employed, he studied all the books he could find on the subject of education, especially the writings of Ratich, Helvicus, Andræ, and Bacon—"by reading of whom," he says, "I was raised in a good hope that at last those so many various sparks would conspire into a flame; yet observing here and there some defects and gaps, as it were, I could not contain myself from attempting something that might rest upon an immovable foundation, and which, if it might be once found out, should not be subject to any ruin. Therefore, after many workings and

tossings of my thoughts, by reducing everything to the immovable laws of nature, I lighted upon my *Didactica Magna*, which shows the art of readily and solidly teaching all men all things." Afterward he wrote a number of other profoundly philosophical works, but it is the general opinion that his views are best learned from the *Didactica Magna*.

Principles of Comenius.—It will be seen, from the following epitome* of his principles, translated from Paroz's "Universal History of Education," how largely the best educational ideas of our own day were anticipated by Comenius. In fact, the general foundation principles to which every reformer since has tried to conform his system may be found in this summary :

1. Instruction is easy in proportion as it follows the course of nature.
2. Instruction ought to be progressive, and adapted to the growing vigor of the intellectual faculties.
3. It is a fundamental error to begin instruction with languages and terminate it with things—mathematics, natural history, etc.; for things are the substance, the body, while words are the accident, the dress. These two portions of knowledge should be united, but we should begin with things, which are the objects of thought and of speech.
4. It is also an error to begin the study of language with grammar. We should first present the subject matter in an author or a well-arranged vocabulary. The form—*i.e.*, the grammar—does not come till afterward.
5. We should first exercise the senses (perception), then the memory, then the intelligence, and lastly the judgment (reasoning). For science begins with the observation; the

* This is Prof. Payne's summary.

impressions received are then imprinted upon the memory and the imagination; the intelligence next seizes upon the notions held in store in the memory, and from them deduces general ideas; finally, the reason draws conclusions from the things sufficiently known and coördinated in the intelligence.

6. It is not sufficient merely to make the pupil comprehend; he should also learn to express and to apply what he has comprehended.

7. It is not the shadow of things which impresses the senses and the imagination, but the things themselves. It is then by a real intuition that instruction should begin, and not by a verbal description of things.

8. By observation, the pupil should first gain a general notion of an object, and should then observe each part by itself and in its relation to the whole.

9. Talent is developed by exercise. We learn to write by writing, to sing by singing, etc.

10. The study of languages ought to begin with the mother tongue. A language is learned better by use, by the ear, by writing, etc., than by rules, which should follow use in order to give it greater exactness.

In the time of Comenius, the Jesuits alone had a systematic course of study, but he laid down one of his own. The Jesuits had no primary schools, but it was this department of education on which Comenius laid most stress. There should be public schools, he held, where only the mother tongue is used, for *all* children between the ages of six and twelve; and there they should learn to read and write well and grammatically, to cipher, to measure and weigh, and to sing; he would also teach the catechism and Bible history, general history, the figure of the earth and motion of the planets, physics and geography, and a general knowledge of arts and handicrafts. After this, for those

who desired higher education, he advocated the Latin school or gymnasium, and then the university and foreign travel.

Comenius's success as a practical teacher seems to have been considerable. One city and country after another sent for him to reform its schools; and at one time he was called to England, where he hoped to be able to carry out one of his life-long dreams, of founding a college of learned men to work together in the investigation of the laws of nature, according to the plan of Lord Bacon; but war breaking out, his hopes were not realized.

The Orbis Pictus.—Comenius was the author of the most widely used school-book ever written. It was called at first the *Janua Linguarum Resrata*; but in its more popular illustrated form it received the name of *Orbis Pictus*. It was translated into ten European and four Asiatic languages, and was reprinted in successive editions for almost two hundred years—first appearing in 1631, and being reprinted in this country in 1812. In this work, Comenius got the better of the classicists by an ingenious device. Europe felt no anxiety to teach anything but Latin; so Comenius gave them a first Latin book that was a sort of encyclopædia of general information and scientific truths. It was printed in parallel columns of Latin and German, and in the form of familiar conversations. The *Orbis Pictus* was the first illustrated school-book ever published, and carried out Comenius's idea of teaching by appeals to the senses. Each subject was illustrated by a small engraving, in which everything named in the letter-press below was marked with a number, and its name was found connected with the same number in the text.

The *Janua* was, for the age, an admirable conception, but less happy in its execution. Comenius made the mistake, in the outset, of trying to use in it every word in the

Latin language, and of never using the same word twice. Besides these faults in the plan, great philosophers have seldom been distinguished by their ease and vivacity in writing for children. It has taken many weary centuries to evolve that thing of beauty and miracle of pedagogical skill—the modern text-book.

We are compelled to pass rapidly over much of the succeeding ground, and can mention but a few of the more prominent “reformers.”

Locke, the English philosopher, wrote a treatise on education which has had great influence in his own country. He insisted strongly on the importance of physical and moral culture, laying great stress on the value of “hardening” boys by exposure and privations, excessive early rising, etc. Doubtless his plan would have succeeded in producing a hardy race, on the principle of the *survival of the fittest*. In intellectual education he had much the same ideas as the other Innovators.

The Jansenists.—The schools of the Jansenists, at Port Royal, in the seventeenth century, were celebrated for moral, religious, and scientific enthusiasm. Their school-books on logic, grammar, and geometry were long considered the best in Europe. Arnauld, Pascal, Fenelon, and many other famous names belong to them. They stood for progress, as the Jesuits did for conservatism. Unfortunately, they incurred the suspicion of the Church and the enmity of the Jesuits, and after a long struggle they were suppressed.

Rousseau.—The next writer who exerted a commanding influence on educational ideas was J. J. Rousseau, whose life (1712-78), nearly spanning the eighteenth century, was one of the great forces of that hot-bed of revolution and change. Rousseau's ideas seem to us rather sentimental, but it must be remembered that they were a revolt

against the excessively conventional and artificial society of his day.

It is difficult to distinguish between what we owe to Rousseau and what we owe to his age. It is true that many of the ideas he advocated were the outgrowth of the general advance of the eighteenth century, many of them had been enunciated before—his educational theories, for instance, were hinted by Montaigne, and almost their entire foundation may be found in the English philosopher Locke; but it was Rousseau who presented these ideas with the contagious enthusiasm which carried captive the hearts, not only of his own nation, but of Germany.

All Rousseau's books were published during the last sixteen years of his life; the three more important ones in the years 1761 and 1762; yet it seems impossible to overestimate his all-pervading influence. It was Rousseau's "New Heloisa" which awakened an enthusiasm for a return to nature, and for a sentimental sort of virtue, in the most artificial, immoral, and heartless society of history—the court of Louis XV. It was his "Social Contract" which supplied the governmental theories of the French Revolution, and, to some extent, those of our own.

Our Constitution was fashioned by practical statesmen who had the wisdom to take the best that the slow growth of centuries had produced in the English race from which we sprang, free it from inconveniences and oppressions, adapt it to our new conditions, and embody it in the wisest and most successful plan of government yet tried upon the earth. But the sonorous preamble of the Declaration of Independence is an echo of Rousseau. It was he, in short, who suggested all the sentimental side of the French Revolution, the cry of liberty, equality, fraternity, the use of the word "citizen," the great fraternal feasts in the Champs de Mars, the festival of the Supreme Being, and so forth.

The "Emile," the third of his great works, dealt with educational ideas, and fell upon fruitful ground in a society eager to welcome all new ideas, especially those relating to the improvement of the race, and brought face to face with the problem of education by the suppression of the Jesuits, the only teachers of the time. As Quick justly observes, many of Rousseau's ideas are still familiar to us, though the "Emile" is no longer read; we call them by the name of Pestalozzian principles, or, more generally, the New Education. The details of his plan appear absurd and fanciful enough, but it is in the spirit of his work, in its fruitful influence upon society that we must look for its true value. It "turned the hearts of the fathers to the children," and awakened a vivid idea of the importance and value of family life and parental care. It was the influence of "Emile" alone which made it fashionable for the high-born mothers of France to nurse their own babies, instead of committing them to the care of peasant foster-mothers. It is the glory of Rousseau that while all his predecessors, except Comenius, from Ascham down to Locke, had considered solely the education of young gentlemen, he, true to that intense feeling, not *for* but *with* the people, which characterized his whole life, thought only of the proper training of a human being. In his hands the ideal of education first became not aristocratic but democratic.

Strange as some of Rousseau's theories were, we yet owe to him many of the best ideas, many of the most beneficent actual improvements of modern education. If others had announced these ideas before, it was Rousseau who gave them a widespread influence, and made them accepted not merely by the minds, but by the hearts of men.

"The sum of the merits of Emile, as a writing, upon education is not to be lightly counted. Its value lies in the spirit which animates it, and

communicates itself with vivid force to the reader. It is one of the seminal books in the history of literature, and in such books the worth resides less in the parts than in the whole. It touched the deeper springs of character. It filled parents with a sense of the dignity and moment of their task. It cleared away the accumulation of dogged prejudices and obscure and inveterate usage, which made education one of the dark and formalistic arts; and it admitted floods of light and air into the tightly closed nurseries and school-rooms. It effected the substitution of growth for mechanism. A strong current of manliness, wholesomeness, simplicity, and self-reliance was sent by it through Europe, while its eloquence was the most powerful adjuration ever addressed to parental affection to cherish the young life in all love and considerate solicitude. It was the veritable charter of youthful deliverance."—*Morley*.

Basedow (pron. *bah'-zeh-do*) was a disciple of Rousseau who attempted to work out his ideas in a school at Dessau, called the Philanthropin. This school seems to have been a sort of uproarious and unsystematized kindergarten, where the children had a most jolly time. They were not kindergarten babies, however, but older children, on whom it was above all things incumbent—in their parents' opinion—that they should learn Latin. Latin they were accordingly taught in a series of hilarious games.

Goethe, Kant, Oberlin, great men throughout Europe, took the liveliest interest in the school, and looked for it to regenerate the race. It was a failure, of course, as any scheme of learning or living without work must always be; but it was one of the forces that helped to break down the barriers of the old order, and let some light and air into the prison of old-fashioned education.

Pestalozzi.—In 1746, Pestalozzi, the most famous of educational reformers, was born at Zurich. His philosophy of education may nearly all be found in Comenius and Rousseau; he was a man who scarcely ever succeeded in any practical undertaking—teaching, or anything else. Whence, then, comes his high place among educators?

First among the causes of his popularity is the genuine, unselfish goodness of the man. Rousseau and Basedow were mean and selfish profligates, but Pestalozzi's life was characterized by unceasing and absolute devotion to the good of his fellow-men. The purity of his soul, the depth of his sympathies, his "enthusiasm for humanity," command our hearts. Second, he wrote two famous books—as well as several less noted ones—"Leonard and Gertrude," a novel of Swiss peasant life, and many years later, "How Gertrude Teaches her Children," a pedagogical work in story form. The third, and perhaps the strongest, reason is that he was the inventor of object teaching—a practical method of carrying out the dictum of all the Innovators, that teaching should begin with appeals to the senses. (For an account of the principles of object-teaching, with illustrative lessons, see Part I.) A fourth reason very probably is that it is the fashion in the nineteenth century to look to Germany for educational light, as it was in the eighteenth to look to France.

The most striking episode of Pestalozzi's life was when, in the Napoleonic wars, he was sent by the government to take charge of the destitute, strayed, and orphaned children in the war-desolated town of Stanz. He gathered them into the only habitable room in an unfinished convent, where he taught them by day, watched over them by night, and shared their scanty food. With only a single servant to help him, he mothered, comforted, nursed, and taught them all. At one time he had eighty pupils, part of them being lodged in the neighboring peasant huts. Most of them were utterly ignorant; and as he had no books, he taught them by objects and by word of mouth, and with wonderful success—the one success of his life. This school continued for about a year, when the building was occupied by the French as a military hospital, and the

school was broken up, in time to save Pestalozzi's health from utter wreck. Afterward he had charge of a well-equipped school at Yverdun, but his utter lack of system and method, his "unrivalled incapacity to govern," to quote his own words, and his financial imbecility, all made it impossible for him to manage a large school, and it proved an inglorious failure. What survives of Pestalozzi is his system of object teaching, the stress he laid on primary education, and his devoted enthusiasm. His general principles, of teaching according to nature, of proceeding from the simple to the complex, etc., are but repetitions of Comenius and Rousseau.

Fellenberg, who was at one time his associate, a man with capacities for organizing and governing, afterward conducted a famous and highly successful school, partially on Pestalozzian principles.

Jacotot (pron. *zha-co-to'*), a French normal-school teacher (1770-1840), has contributed some of the most striking and original ideas in the history of education. His three famous paradoxes, "All human beings are equally capable of learning," "Every one can teach, even that which he does not know himself," "Everything is in everything," obviously need to be taken in a *Pickwickian* sense. His more sensible, practical principles were, that a teacher's business is to cause his pupils to learn things of themselves; to investigate, to examine, to judge; that what is learned should be learned so as to be absolutely known, and should be repeated so often that it can not be forgotten; that whatever new knowledge we acquire should be connected with what we had before. Jacotot's methods in elementary instruction seem to contain the Word Method in embryonic form.

Froebel.—Nearly contemporary with Jacotot is the German Froebel (1782-1852). He was distinguished by the same deep devotion to childhood that characterized

Pestalozzi. He probably comes nearer being a canonized saint of education, in the minds of his enthusiastic followers, than any other reformer. The underlying idea of his system is the self-development and self-education of the child by its own spontaneous activity. The teacher's office is merely to secure full opportunity for this self-activity, to watch and guide, but not to restrain or constrain it. (For an account of his system and methods, see Part I.)

Johann Friedrich Herbart (1776-1841), a professor of philosophy at Königsberg and Göttingen, a profound and original thinker, devoted the labor of his life to evolving a strictly scientific philosophy of pedagogics. No other theory of teaching can be compared to his for completeness, originality, and logical exactness of thought. His ideas are the extreme opposite of Froebel's. Froebel's teacher is a gardener, whose duty is to give the infant mind a favorable opportunity to grow. Herbart's is an artist, whose business is to build up a noble and symmetrical character. Froebel's first idea is freedom from restraint; Herbart's, subjection to righteous law. We have not space even to outline his system of pedagogical philosophy, nor would it be intelligible to any but metaphysicians, but his fundamental idea is this: The one great aim of education is the building up of moral character, the training of the will; intellectual education is only a necessary means to this end. The one thing to be attained is inner freedom—that state of the will in which it promptly executes the dictates of reason and conscience, unhindered by the temptations and delusions of sense. Truly a noble conception; nor is there lacking practical wisdom in the means suggested for carrying it out.

Spencer.—Among educational reformers of our own time an almost superstitious reverence is paid to Herbert Spencer's "Treatise on Education." Mr. Spencer's intellec-

tual greatness is universally conceded, but he is not a guide to be followed blindly, either in philosophy, religion, or education. There are many excellent ideas in his treatise—which ideas may be studied in the summary of Comenius's principles on page 221—but his *distinctive* doctrine is that mental discipline and power can be just as well acquired by studying one thing as another, and hence we should study only what is of the most practical value; that physical science is of more practical value than anything else; hence education should be solely scientific—artist, sculptor, and poet, all need, first of all, to study science. In short, he is as much of a fanatic in behalf of scientific studies as the ultra conservatives are on the side of the classics.

Bain.—Alexander Bain is another philosopher of our day who has written on educational matters. He advances an interesting application of the law of the Conservation and Correlation of Forces. His doctrine is, briefly, that a man has so much vital force, which may be expended in labor, in intellectual effort, or in emotion; *but that which is used in one way can not be used in another.* This statement is respectfully recommended to the consideration of those who teach that manual labor is a rest from study, and study a rest from work—that sawing wood is an admirable means of repose for man or boy exhausted by mental application.

Arnold.—Low.—Of the long list of practical educational reformers of our day it is scarcely necessary to speak. The revered name of Dr. Arnold of Rugby, who showed how much more gentleness and Christian manliness could do for the moral and intellectual improvement of boys than was ever accomplished by the brutal floggings of his predecessors, will occur at once to the mind of every well-informed teacher. Mr. Low, the member of Parliament who did so much for the establishment of “Board Schools” in England,

and has labored so hard to convince the English people that education and Latin are not synonomous terms, should not be forgotten.

Mann.—In our own country, Horace Mann was, perhaps, more distinctively an educational reformer than any one else has been; but, in fact, educational reform in this country has been a matter where, as is fitting in a republic, thousands and hundreds of thousands have labored together for the common weal. It has not been so much the occasional flash—something between a guiding star and an *ignis fatuus*—of some genius whose schemes were half-helpful and half-chimerical; it has been a steady and permanent growth, helped on by innumerable willing workers. It has been what might be expected when a great, free nation sets itself to the work of training its children for citizens. The story of its progress may be read in the concluding chapters of this book.

ANALYSIS OF CHAPTER X.

COMENIUS: (a) His life. (b) Educational studies. (c) *Didactica Magna*. (d) Summary of Comenius's opinions. (e) His system of primary schools. (f) Hopes to found a university on Bacon's plan. (g) The *Janua* and the *Orbis Pictus*.

LOCKE: His ideas of "hardening." JANSENIST SCHOOL at Port Royal.

ROUSSEAU: (a) His time. (b) The "New Heloisa"—the "Social Contract." Influence of the latter in France—in America. (c) The "Emile"—absurd in detail, but a book of power in its spirit and influence—its democratic ideas—Morley's opinion.

BASEDOW: His play school—interest it awakened in Europe—its failure.

PESTALOZZI: (a) His philosophy not new, his life a practical failure—whence his high place? (b) Four reasons: purity and zeal—literary genius—inventor of object teaching—a German. (c) His school at Stanz—his devotion, difficulties, and success. (d) School at Yverdun—cause of its failure, (e) Grounds of his fame. (f) Fellenberg's Pestalozzian school.

JACOTOT: (a) His three paradoxes. (b) His practical principles—germ of the Word Method.

FROEBEL: See Part I., Chapters III. and IV.

HERBERT SPENCER: (a) Not an infallible guide. (b) His *distinctive* educational principle.

ALEXANDER BAIN: Application of the principle of the Correlation of Forces.

Practical reformers of our own day: Dr. Arnold, Mr. Low, Horace Mann. Educational reform in America a general movement.

SUPPLEMENTARY QUESTIONS.

Is the 8th Principle of Comenius more in accordance with nature than the method frequently advocated, that we should teach the parts *first*, and then the whole? Why, or why not? Illustrate.

Does the method of teaching a beginning class in Latin in our high schools generally conform to Principle 4?

Comenius, Pestalozzi, and Froebel all gave their deepest attention to the training of *young* children—was this a new thing in the world? What can you say of the general opinion of the importance of children down to very recent times? Is there danger now that we will go too far in the other direction, and consider children too much and their elders too little?

What names can you mention of eminent American teachers and educational reformers?

CHAPTER XI.

THE MORE RECENT EDUCATIONAL AWAKENING IN FOREIGN LANDS.

HAVING now traced the progress of education and educational thought through the various reformers down to the beginning of our own era, let us glance briefly at the more recent great awakenings in some of the more important foreign states.

In studying the educational reports of these countries, one is filled with amazement at the progress which the world has been making in these later days. At such times he realizes something of the true force and significance of the oft-repeated but little comprehended stanza:

“ We are living, we are dwelling
In a grand and awful time;
In an age on ages telling—
To be living is sublime ! ”

Where but a few centuries ago the common people were literally bought and sold with the land by each petty despot; where the peasantry had no rights that were considered worth the mentioning by those who considered themselves divinely appointed to live in luxury by the toil and sweat of others; where the masses were as unlettered as the very cattle on the hills ; where the life of nine tenths of our fellow-men was one unceasing round of toil and misery; where the mind and the soul partook of the servile bondage of the body; and where, in consequence, ambition, hope, and faith

were fettered down with chains they had no power to rend —where all these relics of the grim, barbaric past still lingered at so late a date that their frowning ruins crown each beetling crag, the nineteenth century has shed its radiant beams, and the school-house, with all the beneficent associations which cluster round its name, now nestles in the valley! The children of the poor have now the good tidings of intellectual freedom taught them, and thus another of the signs of the fruition of the Christian era is fulfilled. Aye, more than this: if the blind do not actually receive their sight; if the deaf are not literally made to hear; if the dumb are not made to speak; if the outward forms of all these miracles are not actually performed throughout the Christian world in this high-tide of the animating power of Christian civilization, an equally marvelous miracle is being wrought on every hand, and the *spirit* of the good deeds which the Prince of Peace performed upon a very few is now extended to a countless multitude of sufferers! The blind are largely compensated for their want of sight; the deaf and dumb are trained to hold intelligent communion with their fellow-men; the insane and feeble-minded, now no longer the butt of brutal ridicule, are kindly cared for in asylums; while hospitals, equipped with every comfort and with all the medical skill that the marvelous science of this age can furnish, are everywhere provided for the suffering poor.

All this is but the legitimate fruition of the spirit of the Christian civilization, which throughout the mediæval and the later centuries had been slowly but yet surely permeating society, until the glorious dawning of the NINETEENTH CENTURY. To live ten years in such an age as this is worth a thousand in Methuselah's time.

The table given on page 236 will present a general view of the wonderful work now being done in some of the

principal countries of the world, as well as in some others which, though not so important to the world at large, are of special interest to Americans. The term "school pop-

Reference Table of Comparative Statistics of Elementary Education in Foreign Countries, gleaned from the Latest Available Statistics.

COUNTRIES,	Number of elementary schools.	Enrollment.	Per cent. enrollment to population.	Teachers.	Normal schools.	Pupils in normal schools.	Total annual expenditure.
Austria.....	16,440	2,679,638	12	54,407	69	7,555	.....
Hungary.....	16,305	1,836,459	11	23,457	70	3,398	\$4,930,574
Belgium.....	4,805	325,656	6	8,604	51	3,147	2,746,753
France.....	79,755	4,662,668	12	135,216	..	..	16,212,000
Bavaria (Ger.).....	7,131	842,628	16	21,930	18	1,426	3,420,322
Prussia (Ger.).....	34,016	4,838,247	16	66,023	113	9,752	27,754,524
Saxony (Ger.).....	2,154	533,876	17	8,768	19	2,138	4,395,020
England and Wales.....	19,173	4,553,752	16	87,455	43	3,259	33,275,968
Scotland.....	3,092	615,498	16	11,645	7	859	4,901,166
Ireland.....	8,024	1,071,791	14	11,709	4	575	4,419,235
Italy.....	42,555	1,914,400	6	41,210	134	9,851	.....
Japan.....	29,589	3,192,509	9	26,483	80	6,569	7,537,668
Netherlands.....	4,066	593,656	14	17,214	7	575	5,872,447
Russia in Europe.....	28,329	1,539,975	2	24,380	61	3,969	5,378,838
Switzerland.....	4,380	434,080	16	8,305	..	1,256	2,852,855
British India.....	82,953	2,062,657	1	.....	108	3,973	2,604,858
Cape Colony.....	989	75,713	23	1,502	..	..	950,248
| British Columbia.....	.....	4,027	88	89	..	..	71,152
| Manitoba.....	.....	16,926	26	.....	..	..	352,849
| New Brunswick.....	.....	68,583	21	1,567	1	366	413,907
| Nova Scotia.....	.....	105,137	24	.....	1	176	620,000
| Ontario.....	.....	487,490	25	7,304	2	441	3,043,401
| Prince Edward Island.....	494	21,983	20	494	1	125	145,599
| Quebec.....	4,500	217,041	16	5,460	1	84	2,657,494
Jamaica.....	723	61,571	11	686	..	..	130,494
Argentine Republic.....	1,741	133,642	4	3,369	20	5,837	.....
Chile.....	862	78,810	3	.....	3	293	.....
Venezuela.....	1,957	99,466	5	2,279	4	107	460,849
Hawaii.....	172	9,016	11	300	..	..	150,766
New South Wales.....	2,164	185,438	18	2,865	2	146	2,065,109
Queensland.....	467	50,295	22	1,348	..	..	874,012
South Australia.....	504	44,495	14	1,081	1	32	441,584
Victoria.....	1,846	226,107	22	4,175	1	53	2,810,199
West Australia.....	91	4,156	13	.....	..	..	9,236
New Zealand.....	.....	106,328	16	2,721	4	143	1,584,029
Tasmania.....	204	15,418	12	378	..	..	105,355

ulation" is so misleading—being based as it is on so many different ages—that it is not here employed, but the ratio of enrollment to the entire population is given instead. It must be borne in mind that these figures, aside from the normal schools, have reference only to the "elementary" schools—*i. e.*, to those below the grade of high schools.

The school age varies in these countries, but from five or six to fourteen or fifteen is the general rule. In Belgium, Italy, the Netherlands, and Queensland it is six to twelve. In England and Wales the school age is obligatory from five to fourteen, but pupils may be admitted as young as three. This is the only case where the minimum age is less than five. The only foreign country in which the maximum age is above sixteen is Ontario, where it is twenty-one. The average period of "school-age" is a little more than eight years in the principal countries of the world. The expenditures include, as a rule, teachers' salaries, supervision, etc. For France the amount is that expended by the state alone. For England and Wales and Scotland the cost of night schools is included. In the following countries the elementary schools are free: France, Italy, Switzerland, Algeria, British Columbia, Manitoba, New Brunswick, Nova Scotia, Ontario, Prince Edward Island, Costa Rica, Guatemala, Argentine Republic, Chili, Ecuador, Victoria, Queensland, and New Zealand. In these the cost of elementary education is defrayed by state and local funds. In the remaining countries a portion of the cost is met by tuition.

Great Britain.—The present school system of Great Britain was established in 1870, and since that date elementary education has been making rapid strides. A glance at the statistics in the annexed table will show the great progress made since that date.

PROGRESS IN ENGLAND AND WALES.

	1870.	1874.	1875.	1876.	1877.	1887.
Schools Inspected	8,281	12,246	13,290	14,368	15,287	19,173
Accommodation:						
• Day Schools.....	1,878,584	2,861,319	3,146,424	3,426,318	3,653,418	{ 4,553,752
Night Schools.....	.....	10,507	13,055	14,810	16,169	
Average attendance:						
Day Pupils.....	1,152,389	1,678,759	1,837,180	1,984,573	2,150,683	{ 3,470,509
Night Pupils.....	73,375	48,090	48,382	49,858	57,785	
Number of Teachers....	28,033	48,234	53,320	58,457	62,870	87,455

The progress of elementary education in London is said to be especially satisfactory. There is now a total enrollment in the state-aided elementary schools of that city of nearly 700,000 pupils, with an average daily attendance of almost half a million. The average expenditure per child, in 1887, was \$15.33, of which \$9.00 was charged to "rates," and \$1.70 to "fees," leaving \$4.63 per pupil to be met from "Government Grants."

"The results of the examinations show that the teaching of elementary subjects has reached the highest point yet attained. The percentages of passes were: arithmetic, 87.3; writing, 90.6; reading, 95.7.

"With respect to other subjects, Chairman Diggle says: 'There is a space of time daily set apart for the purpose of teaching the children, through Bible lessons, the essential principles upon which right conduct depends. In every school the children are taught to sing, and to sing by note. By means of extension exercises and drill, not only is the physical well-being of the children promoted, but habits of discipline and obedience are formed. The boys are taught drawing, while needle-work is similarly taught in the girls' departments. All the children take English as a class subject, which means that a certain amount of repetition is learned, and a simple knowledge of English grammar is acquired.'

"Practically, all the boys are taught geography, while it is taught to only about ten per cent. of the girls. On the other hand, more than 9,000, or about eleven per cent., of the girls acquired some knowledge of practical cookery. History, which as a class subject is still unde-

fined in the educational code, and of which the systematized course is left wholly to the discretion of her Majesty's inspector and the school teacher, is only taught systematically to 3,400 boys and 600 girls. This shows a slight increase in the number of girls, as compared with the previous year, but a decrease of 1,000 in the number of boys.'

"He observes further that 'The great danger which apparently threatens the steady progress of elementary education is the pressure which is constantly being exerted to render obligatory additional subjects of instruction, without reference to the varying circumstances of the children, or the settled conditions of elementary school life. We are in danger of destroying the efficiency of elementary education by attempting to teach a little of many things, instead of teaching what it is practicable to teach thoroughly and well. Of the children in the London board schools, ninety-six per cent. leave school before the age of thirteen years. While the child attends school he is taught for about five hours daily, for five days in the week. In the case of a large proportion of the children, their home circumstances either altogether preclude, or render extremely difficult, the preparation of home lessons in aid of the ordinary school work. When they are absent from the influence of the school they are surrendered to the education of the street. It is quite impossible to carry out an ambitious educational programme under such conditions as these. But what it is possible to do is to teach the elementary subjects thoroughly and intelligently, and in such a manner as to instill into the minds of the children the desire for knowledge, and a sense of enjoyment in its pursuit.'

"In 1885 the board began an experiment in manual training for boys in one of the schools. The boys are selected from the seventh standard, and instructed in carpentry two afternoons in each week. Through the liberality of the city guilds, a sum of \$4,875 has been provided for the purpose of extending the experiment. In consideration of the fact that ninety-six per cent. of the children leave school before they are thirteen years of age, the chairman urges the importance of a more efficient system of evening or continuation schools, by which their instruction may be continued long enough to insure lasting results. Elementary education is conducted, as has been noted, in board and voluntary schools. The latter are established mainly by the several religious denominations."—*Report of Commissioner of Education.*

France.—In France they have naturally had stormy times in establishing a school system on a sound educa-

tional basis, but despite all the turmoil there has been steady progress.

Thus, in 1876 there were 71,547 primary schools in France, while ten years later we find 79,755. This is an increase of 8,200 schools, or an average gain of over 800 schools per annum. The number of teachers had also increased during the same decade from 110,709 to 135,216, or at the rate of nearly 2,500 per year.

The enrollment, too, during this period had increased almost 1,000,000. To convey a clearer conception of the nature of the schools of France, the following statement of their course of study in the secondary grades, compiled by President Eliot, of Harvard, is transcribed :

[In the Preparatory Class, and in the eighth and seventh classes, the number of hours of teaching per week is 20, including one hour a week for drawing.]

PREPARATORY CLASS. Age 8 years.

FRENCH.—9½ hours a week. Reading, spelling, writing, and the most elementary rules of grammar.

GERMAN OR ENGLISH.—4 hours a week. Exercises in reading and writing. Pronunciation. Accent. Indispensable paradigms.

HISTORY.—1½ hours a week. Biographies of illustrious men—travelers, patriots, inventors. Talks on great personages in French history down to 1789.

GEOGRAPHY.—1½ hours a week. Meaning of the principal terms in physical geography, illustrated from the town or county. Outlines of the physical geography of France. Geographical drawing illustrated with the globe, chart, and blackboard. The continents.

ARITHMETIC.—1½ hours a week. Mental arithmetic—whole numbers.

OBJECT LESSONS.—1 hour a week. Coal, metals, coins, clouds, rain, snow, ice, springs, brooks, lakes, wells, canals, sea-water, salt, wind, storms, familiar animals and plants. [This set of subjects lasts two years.]

DRAWING.—1 hour a week. Straight lines, angles, circles, poly-

gons, stars, ellipses, spirals, the curves of plants, first notions of perspective. [This set of subjects lasts three years.]

EIGHTH CLASS. Age 9 years.

FRENCH.—9 hours a week. Reading, spelling, writing, grammar, and little compositions. Descriptions reproduced.

GERMAN OR ENGLISH.—4 hours a week. First notions of grammar, reading, writing, spelling, common phrases. English text-book—Miss Edgeworth's Tales.

HISTORY.—1½ hours a week. Outline of French history to Louis XI.

GEOGRAPHY.—1½ hours a week. Elementary geography of Europe, Asia, Africa, America and Oceania. Voyages of discovery.

ARITHMETIC.—2 hours a week. Whole numbers. Exercises in mental arithmetic. Easy problems.

OBJECT LESSONS AND DRAWING.—1 hour a week each. Same as for the Preparatory Class.

SEVENTH CLASS. Age 10 years.

FRENCH.—9 hours a week. As in previous years. Syntax.

GERMAN OR ENGLISH.—4 hours a week. Grammar. Auxiliary and irregular verbs. Easy prose. Exercises in reading and conversation. English text—Sanford and Merton, and Old Poz.

HISTORY.—1½ hours a week. History of France from Louis XI. to 1815.

GEOGRAPHY.—1½ hours a week. Elementary geography of France.

ARITHMETIC AND GEOMETRY.—2 hours a week. Whole numbers and decimals. Metric system. Geometrical figures.

STONES AND SOILS.—1 hour a week. Limestones, lime-kilns, mortars, plaster, clay, bricks, pottery, quartz, flint, grindstones, granite, sands, drift, mold, soils, fossils, quarries, volcanoes.

DRAWING.—1 hour a week. Same as for the Preparatory Class.

Germany.—The above is sufficient to show that French education, from the age of eight to ten, is rather a serious matter. But heavy as his tasks may be, the French boy has the satisfaction of knowing that his German neighbor has still more serious ones imposed upon him. So difficult

is the course of study in the average German school that pupils are obliged to study weary hours outside of school, and when for any cause they miss an evening's study, it is said they find it difficult again to overtake their classes. More than this, they have been accustomed to carry home so many ponderous books on such a multitude of subjects that the authorities have recently enacted laws in certain of the German states forbidding the imposing of such heavy loads on tender children! The query that suggests itself is whether it would not be wiser to reform their courses of study, so that the bearing home of these grievous burdens would be no longer necessary. But aside from this overloading of their course, the German states have generally well-managed schools. It should, of course, be borne in mind that each state is independent in its school affairs. They seem to have generally abandoned the theories of their earlier educators in regard to infant training, and the mothers now are wisely permitted to retain their little ones at home until they reach the age of six. Then, too, the primary teachers in the German schools are, for the most part, thoroughly prepared for their work, as witness the fact, by a glance at the table on page 236, that Bavaria sustains eighteen well-equipped normal schools, Saxony nineteen, and Prussia one hundred and thirteen!

Excessive Centralization.—Space will forbid even the mentioning of the schools and colleges of the various other European states, further than to state in general terms that, with scarcely an exception, they are making rapid progress, and that, too, in some cases against serious obstacles. Probably the greatest hindrance in the way of their efficiency is the extreme centralization of their management. Their very perfection of organization is, perhaps, their worst defect. The schools are so far re-

moved from the control of the people that they are apt to lose personal interest in them; and in some cases it is even to be feared that they are regarded as burdens to be shunned, like military service.

On this important subject, note what Dr. Leonard Bacon has to say regarding the schools of Switzerland as compared with our own:

" My friend, the village pastor near my house just outside of Geneva, looked puzzled when I told him that, on the American plan of public education, we had worse schools and better education than in Switzerland; that our average boy gets far inferior instruction, and our average man knows a great deal more. But it was true, nevertheless; and before we got through with the subject, I believe he saw the point of it.

" Their system of public education is the pride of Geneva. It begins with the primary school, and culminates in the university with its many faculties for all departments of science, and its technical schools for fine and useful arts. And the system, down to the organization of the primary school of the poorest and remotest peasant village of the little canton, is operated and directed from the Bureau of Public Instruction in the *Hôtel de Ville* at Geneva. Consequently it is well directed. Teachers are appointed, books and apparatus purchased, courses of study determined, at the center of government of the tiny state, by experienced officials, under the direction of a member of the executive council; and it 'goes without saying' that the work is better done than if it were in the hands of local committees in each village, predisposed to the encouragement of native talent. All the dignity of the government is brought to bear to sustain the prestige of the schools.

" How excellent is this school organization, both in the city high schools and in the ordinary school of a country village, I have reason gratefully to testify; and I could not but acknowledge to my friend, the pastor, that this work of the Bureau of Public Instruction was far better done than that of the average 'school destrict' committee in America, and that the average working of the school was more effective. Yet there is no mistake about it—the people are nothing like so well educated a people. This is obvious in their very faces, but also in a hundred more statistical forms of evidence; as, for instance, in the annual examination of the militia recruits, who consist of all able-bodied young men arriving at a certain age. The number of these who have forgotten,

from disuse, the very rudiments of their school-learning is so large as to have become a subject of anxious consideration to the friends of popular education.

"' But,' asks my friend, the pastor, ' wherein lies the difference ? We have the same free institutions. Liberty and equality are perhaps more emphatically built into the basis of our constitution than of yours. Every man has the stimulus of an unlimited career open to him here, as with you. It is not strange that in a state like Prussia, for all its superb and ubiquitous school system, the growing peasant should relapse into stupid illiteracy, simply from lack of use. But Switzerland is a free country, if any is. Every man has his share in the affairs of the country.'

"' Yes,' said I, ' in the affairs of the country, and that is all; not in the affairs of the town, and parish, and local school. Suppose that your peasants here had it on their hands to see that the village school was what it ought to be, and should begin to find it important that their children should have as good advantages as their neighbors'; do you not think there would be a different state of things in the village ?'

"' I do, indeed,' thought the pastor, ' and a pretty mess it would be !'

"' I have no doubt you are right. Things would get sadly mixed. When it came to appointing a new teacher, the jury of the vicinage would not be reliable for an intelligent verdict. On the subject of the course and methods of study, they would not be clear in their views. I can not picture to myself the agents of Hachette, and Firmin Didot, and the other great publishers, going about to the members of the village school committee, to urge the superior merits of their respective school geographies, or approaching the leading farmers of the neighborhood with arguments on the excellence of the Pestalozzian or inductive method, as represented in their new French grammar. There is no doubt that this kind of direction would be bad for your village school, and still worse for the school system of the canton. It would break up its beautiful symmetry, and set everything at sixes and sevens. But it would do more than the finest organization can do to accomplish the ends for which schools and school systems exist. It would give you, by and by, what we have in America, a farm and village population capable of directing the schools of their own children. Your people have not faith in the American principle that it is better for a community to manage its own affairs, and do it badly, than to have them well managed from the outside. Your democracy is of the French type,

which does not go much beyond giving to all the people a voice in creating a central administration, which then absorbs into itself all conduct of local affairs, instead of leaving them to the people locally interested in them.

"And so, with many words, scarce persuaded I my Swiss brother that our better education in America was owing, not indeed to our worse school system, but to the things which make our school system worse."

ANALYSIS OF CHAPTER XI.

How the progress of educational thought has been traced down to the beginning of our own era.

What is proposed in this chapter.

One's feelings on studying the educational reports of recent date. The wonderful change.—How the spirit of Christian civilization has permeated society.—Illustrations of this.

What the general reference table on page 236 shows. Why "school population" is not given in this table. The kind of schools which this table includes. The school age in foreign countries.—The average period of school age. What the column of expenditure includes.

Countries in which the elementary schools are free. Their nature in the remaining countries.

THE PRESENT SCHOOL SYSTEM OF GREAT BRITAIN: (a) When established. (b) Table showing its progress.

ELEMENTARY EDUCATION IN LONDON: (a) Enrollment and daily attendance. (b) The average expense per child. (c) Proficiency illustrated. (d) Course of study. (e) The danger that waits the schools. (f) The age at which children leave school. (g) The amount of time spent in school. (h) Home lessons impracticable. (i) Evening schools needed.

FRANCE: (a) Stormy times. (b) Steady progress illustrated. (c) The course of study.—Its heaviness.

GERMANY: (a) Each state has its own system. (b) The course of study generally heavier than that of the French. (c) The boy's study out of school, and his load of books. (d) Recent laws regarding this. (e) Children not now sent to school until six years old. (f) The high qualification of teachers, as shown from the normal schools.

Dr. Bacon on the great obstacle in the way of most European school systems.

SUPPLEMENTARY QUESTIONS.

Compare the condition of the unfortunate classes in modern Christian lands with that of similar classes in other lands and other ages.

Contrast the schools of to-day with those of 100 years ago.

In what respects do you consider that there has been the greatest progress?

How do you account for the fact that the per cent. of school enrollment is so low in some of the South American states? In Russia? Belgium? Italy?

How do you account for the school enrollment's being so high in Japan, as compared with other pagan countries?

CHAPTER XII.

AMERICAN EDUCATION DURING THE COLONIAL PERIOD.

PECULIAR interest attaches to the beginnings of education in this land of schools and colleges, but in the present chapter we can do little more than glance at a few of the more important of these. The facts here stated have been gleaned from a variety of sources, but chiefly from the reports of the Commissioner of Education, and from Boone's "Education in the United States."

New England.—The importance of learning was well-nigh universally acknowledged by the early settlers of New England, where the people prized it next to their religion. The first school entry for Boston is the record of a public meeting held April 13, 1635. In this meeting "it was generally agreed upon that our brother, Philemon Purmont, shall be intreated to become schoolmaster for the teaching and nourtering of children with us." The grant of thirty acres of land along Muddy River, assigned to the brother, was, two years after, "publicly confirmed." Thenceforth the civil action in education runs throughout the civic record.

The conception of the educational responsibility of the state is most forcibly expressed in the two acts of 1642 and 1647, passed by the general court [legislature] of the Massachusetts Bay Colony. By the former, the selectmen of every town were required to "have a vigilant eye over

their brethren and neighbors, to see, first, that none of them shall suffer so much barbarism in any of their families as not to endeavor to teach, by themselves or others, their children and apprentices so much learning as may enable them perfectly to read the English tongue, and knowledge of the capital laws, under penalty of twenty shillings for each neglect therein."

The same act further provides that "all parents and masters do breed and bring up their children and apprentices in some honest, lawful calling, labor, or employment, either in husbandry or some other trade profitable for themselves and the commonwealth, if they will not or can not train them up in learning to fit them for higher employments."

While universal education was thus enjoined, the law of 1647 went further, making the support of schools compulsory, and the blessings of them universal. By this law every township containing fifty householders was required to appoint a teacher, "to teach all children as shall resort to him to write and read;" and every town containing one hundred families or householders was required to "set up a grammar schoole, the master thereof being able to instruct youth so farr as they may be fited for the university." We can not estimate the full scope of the provision unless we keep in mind that the term "grammar school," in the old laws, always meant a school where the ancient languages were taught, and where youth could be "fited for the university."

"Thus," says a commentator, "were recognized and embodied in a public statute the highest principles of political economy and of social well-being—universal education and the prevention of non-producers among men."

Similar laws were adopted in Connecticut; but Rhode *Island* seems to have made no attempt at establishing

anything like a general school system until after the Revolutionary War.

Nature of the Schools.—Of the real efficiency of these schools but little can be learned, except by way of inference from the nature of their teachers, the subjects pursued in them, and the text-books in use. It is affirmed that of the twenty-two masters of the Plymouth school, from 1671 to the Revolution, twenty were graduates of Harvard, and it is probable that the “grammar schools” generally were taught by men of high classical attainments. It was probably true, however, then, as in later times, that the masters or principals of this grade of schools were appointed on account of their supposed ability to teach Latin and Greek, without much reference to their other natural or acquired qualifications. Still, these schools were undoubtedly much better taught than were those in the rural districts, where, if cotemporary writers may be trusted, the teachers were often woefully incompetent. For a statement of the qualifications of teachers at about the time of the Revolution, when it is fair to assume that the conditions were better than at this earlier period, see Chapter XIV.

The salaries of the teachers varied according to the nature of the schools and the ability of the district to meet the expense. It is stated that, previous to 1800, the wages of masters varied from four to ten dollars per month, while mistresses received from fifty cents to a dollar and a half per week. They generally “boarded around,” however, and consequently had but few expenses. It must also be borne in mind that the purchasing power of money was then much greater than at the present time. Female teachers were the rare exception in colonial times, as indeed they were until long after the Revolution.

Text-books.—A glance at the nature of the text-books

in use will help us further to form an estimate of the nature of the early New England schools:

Up to 1665, Richard Mather's Catechism and the Bible were almost the only *books* used. Then the New Testament, and the Psalter, containing the Psalms, the Proverbs, the Sermon on the Mount, and the Nicene Creed, were introduced. The Horn-Book was also introduced at an early date, and the far-famed New England Primer supplanted the Catechism toward the close of the seventeenth century. The classes were ranked as follows: (1) The Psalter Class, or beginners; (2) the Testament Class; and (3) the Bible Class.

The "Horn-Book," above referred to, was an English production. It consisted of a pasteboard sheet containing the alphabet and as many monosyllables as could be crowded into the space, set in a frame like a slate, and covered on both sides with transparent sheets of horn to protect its precious characters from the touch of the little learners' fingers.

Spelling and reading were taught from the same book—a long mechanical course in the former often preceding the latter, and this practice was continued far down beyond the Revolution. It was no uncommon thing in these old-time schools for a teacher, after having had a "spelling class" under his tuition for months, to inquire incidentally whether they could *read*. The New England Primer was a famous book in its day. It was first issued during the latter part of the seventeenth century; was revised and enlarged many times, and continued in use until the close of the eighteenth century. It must be seen to be appreciated. For a further account of early school-books, see Chapter XIV.

Education of Girls.—With all New England's proud record as the pioneer in popular education, the fact must

be recorded to her discredit that the literary education of her girls was almost totally neglected during the first hundred years of her history.

"Before the close of the last century most New England towns had made some provision for the education of girls, either in short summer terms, or at the noon hours, or other intervals, of the town (boys') school. But no such opportunity was afforded girls to make the most of themselves as had been forced upon boys for a half-dozen generations. There were certain schools that were not only eminently successful as schools, but were agencies of wide influence in educating public sentiment, and at the same time of service in publishing the possibilities of the female mind. . . . The most vigorous and systematic experiment, however, and the most vigorously and systematically antagonized, was in Boston. As early as 1700 there had been 'writing-schools' to which girls were admitted. They were irregularly maintained for nearly a hundred years, but to no definite purpose. Instruction was usually given by the teachers of the common schools, but between the regular sessions. About 1787, Mr. Caleb Bingham, with an illustrious reputation as a teacher, proposed to open a real school for girls, where, besides writing, they should be taught reading, spelling, arithmetic, and English grammar. Immediately upon opening, his school-room was filled. The supply created a demand. More sought admission than could be accommodated. With the selectmen's daughters in school, female education was becoming popular. It was proposed to establish three new schools for girls, called "reading-schools." Now was introduced a curious organization. Pupils attending a writing-school in the morning in one building, were, in the afternoon, in another building, by another set of teachers, instructed in the "reading-school." While the girls were in one school, the boys were in another; and, to avoid too great hazard, the girls were only allowed to attend school six months in the year. This came to be called, very appropriately, the "double-headed" system, and it continued until near the middle of the present century."—*Boone.*

Harvard.—The beginning of higher education in this section dates from the founding of Harvard College by the general court [legislature] of Massachusetts Bay Colony,

in 1636. This, it will be remembered, was but sixteen years after the landing of the Pilgrims in the unbroken wilderness, and but six years after the founding of Boston.

About \$2,000 was at first appropriated by the legislature, and additional gifts, in books and cash and general supplies, were made, and the school opened with a small attendance two years afterward. A few years later each family gave a shilling, a sheep, a string of wampum, or a peck of corn for its support, and the income of the ferry between Boston and Cambridge was appropriated for the same purpose.* It seems to be in strict accord with the eternal fitness of things that this earliest college in America should continue to be, by general consent, the first in point of excellence as well as age.

New York.—The fragmentary records and occasional notes of the beginnings of education in the Empire State which have survived colonial transfer and revolutionary confusion, repeat in dimmer but still legible characters the principles so clearly marked in the Puritan colony.

The settlers of New Amsterdam brought an ideal from their native land; there they had been participators in the advantages of the first system of common schools ever established in Europe. The West India Company were bound by the national authorities to maintain in their distant colony in the wilderness of the New Netherlands "good and fit preachers, schoolmasters, and comforters of the sick." As the government bound the company, so they in their turn obliged the patroons to support in their

* It is an interesting fact that this great university, as well as most other early educational and religious institutions in this country, resorted to the questionable practice of raising funds through lotteries, during "the good old days." In 1775 Harvard realized \$18,000, and in 1811, \$29,000, from the sale of lottery tickets. Columbia College, Union College, Hamilton College, academies everywhere, and even the common-school funds, in some cases, were assisted in this way. Verily, the world is growing better.

several agricultural colonies a minister and a schoolmaster. Until 1633 the double function devolved upon one person. Then "teachers of approved learning" were introduced by the governor, and several schools established, one of which, that of the Reformed Protestant Dutch Church, still attests the early conviction of the public responsibility in the instruction of the young. These schools were open and free to all children who chose to attend them. Even in the private schools established for the children of the wealthy, no one could teach without a license from the civil and ecclesiastical authorities.

During the Dutch period the schoolmaster, in order to supplement his income, was accustomed to dig graves, ring the church bells, and act as chorister and town clerk. At the time of the surrender of the Dutch in 1664, almost every town in the colony had its school and its teacher; but after the occupation by the English, these schools were largely broken up. Still, it is recorded that during the English period some of these schools were continued by Dutch masters who taught English as an accomplishment.

At as early a date as 1702, free grammar schools were established by law in the city of New York; but it was not till 1795 that the general common-school system of the State was established.

Delaware.—Mixture of peoples is a striking feature of the early settlements along the left bank of the Delaware; but amidst the diversity of social customs and religious observances and industrial aptitudes which characterized Quakers, Moravians, Lutherans, Swiss Mennonites, and Catholics, there was a singular unanimity of feeling with respect to education. That the Dutch and Swedes established little schools in connection with their churches, as had been done in Manhattan, and watched them with jealous care, is not a matter of conjecture. Among the records

of the Dutch government on the Delaware is an account of the labors of Evert Pietersen, who arrived in the colony as schoolmaster, comforter of the sick, and setter of psalms, April, 1657, and in August of that year had twenty-five pupils. It is said that the first school for girls in the colony was established at Lewiston, Delaware. The Swedes established schools at Uplandt (now Chester), Tinicum, and elsewhere.

Pennsylvania.—In December, 1682, the first legislative assembly met at Chester, and one of its three acts was the passage of the “great law.” In this Penn made provision for the education of the youth of the province, and enacted that the governor and provincial council should erect and order all public schools. The school clause of Penn’s law was as follows :

“Be it enacted by the authority aforesaid, That all persons within the province and territories thereof having children, and all the guardians or trustees of orphans, shall cause such to be instructed in reading and writing, so that they may be able to read the Scriptures and to write by the time they attain to the age of twelve years, and that they then be taught some useful trade or skill, that the poor may work to live, and the rich, if they become poor, may not want; of which every court shall take care. And in case such parents, guardians, or overseers shall be found deficient in this respect, every such parent, guardian, or overseer, shall pay for every such child, five pounds, except there should appear incapacity of body or understanding to hinder it.”

Subsequent legislation reaffirmed the provisions. Thus, by act of assembly it was required that the laws should be taught in all the schools of the province, and in 1693, at an extra session called to resist the usurpations of Governor Fletcher, the assembly passed a second school law which provided for the education of the youth in every county. Among colonists ripe for such legislation the school spirit was naturally expansive. Beside elementary schools, free

to both sexes, private schools and classical schools for boys multiplied. In 1749 the germ of the University of Pennsylvania sprang up in the form of an academy and charitable school, supported by subscription. It was chartered and endowed in 1753, erected into a college in 1755, and became a university in 1779.

New Jersey.—Schools were early established in New Jersey, and when Philadelphia was but a year old an island in the Delaware River was appropriated to education in the Burlington settlement. It was provided that the revenues from the soil or rent of this land were to be enjoyed "by all the families equally." This is one of the very oldest permanent school-funds in America, and the revenues from it are still enjoyed by the town. A few years later a law was passed authorizing the establishing of schools in any town of the colony—"the consent of the major part of the inhabitants to be binding upon all, even to the distress of their goods and chattels," for the support of the schools. This seems very much like the present American principle of public schools. The law was not, however, mandatory upon the towns, and they might or might not establish schools, as they saw fit. It should be recorded to the honor of the colonists that within ten years after the passage of the law, all the counties had availed themselves of its privileges, and, considering the poverty of the people and the sparseness of the population, these schools were, for the most part, generously supported. The people seem to have been so well satisfied with the system that for the space of a hundred years nothing further was desired.

Virginia.—The early school history of Virginia centers in the establishment of the College of William and Mary. The documents in which it is comprised—namely, the petition from the general assembly and the charter from their

majesties—fairly illustrate the educational theory of the Virginians. When a school was necessary, to the “end that the Church of Virginia might be furnished with a seminary of ministers of the gospel, and that the youth might be piously educated in good letters and manners, and that the Christian faith might be propagated amongst the western Indians”—“a place of universal study, or perpetual college of divinity, philosophy, languages, and other good arts and sciences”—the people turned to the general government and made their desires known.

Toward the endowment of the college, William and Mary contributed one thousand nine hundred and eighty-five pounds, raised out of the quit-rents of the colony; one penny a pound on all tobacco exported from Virginia and Maryland; the office of surveyor-general, with all its issues, fees, etc.; ten thousand acres of land lying on the south side of Blackwater Swamp, and ten thousand acres in Pamunk Neck. This is the only educational institution in America that received aid from the mother country.

Taxation continued to be an important source of revenue to the institution; thus, in 1726, a duty was laid on liquors for its benefit by the House of Burgesses; in 1759, a grant was made to it of the tax on peddlers; and from these various revenues it was, in 1776, the richest college in North America.

The responsibility of government, the necessity of supervision, the justice of a school tax, characteristics all of the modern system of free public education, are embodied in the charter history of this honored institution. “Nor was it unfortunate,” says the Commissioner of Education, “that public interest in this instance was first directed to superior learning. Some forces work most effectually by downward pressure; systems of education beginning with the elements have been known to exhaust themselves in

contracted bounds; but the university virtually involves the necessary antecedents, as the subsequent history of education in Virginia indicates."

The Southern States.—The Southern colonies met with great difficulties in their plans to promote common-school education. The royal governors were generally opposed to public instruction, and would not allow the people to have common schools.* One of the governors of Virginia, Sir William Berkeley, said: "I thank God there are no free schools nor printing in the colony, and I hope there will not be these hundred years, for learning has brought disobedience, heresy, and sects into the world, and printing has published and scattered them."

Common-school education in most of the Southern States was not, however, neglected in colonial days to the extent that many have supposed, and it is clearly unjust to hold the people responsible for the sentiments of their royal governors; and yet we are very apt to form our opinions from just that sort of evidence.

The United States Commissioner of Education, after a careful examination into the facts of the case, publishes over his own name, in a document just issued from the Bureau of Education, the following card:

"The growth of the American public-school system, and its excellence, have imparted a peculiar interest to the history of the Massachusetts colonies, in which its essential principles were first promulgated and developed. Massachusetts, however, did not stand alone in its efforts for the establishment of schools. The same purpose animated her sister colonies. This is particularly true of South Carolina."

Space will forbid to give here the abundant evidence on

* Governor Nicholson, of South Carolina, formed an honorable exception to this rule.

which this statement is based, but no impartial reader can peruse Circular No. 4, issued from the Bureau of Education in 1889, without being thoroughly convinced of its truth.

South Carolina.—As early as 1712 the assembly passed laws for the establishing and maintaining of a free grammar school in Charleston, "for the use of the inhabitants of South Carolina;" and it was further enacted "that any schoolmaster settled in a country parish, and approved by the vestry, should receive ten pounds per annum from the public treasury;" and that the "vestry should be authorized to draw from the same source twelve pounds toward building a school-house in each of the country parishes." Prof. Rivers, in his "Early History of South Carolina," says:

"The Society for Propagating the Gospel sent out missionaries not only to preach, but 'to encourage to setting up of schools for the teaching of children.' Their schoolmasters were required 'to take especial care of the manners of the pupils in and out of school; warning them against lying and falsehood and evil speaking; to love truth and honesty; to be modest, just, and affable; to receive in their tender years that sense of religion which may render it the constant principle of their lives and actions.' The want of schools, however, was not immediately remedied, and such urgent appeals were made to the society that in 1711 they established a school in Charleston under Rev. William Guy. In the previous year several persons having bequeathed legacies for founding a free school, an act was passed (1712) for this purpose, and soon afterward for extending similar benefits to all the parishes."

That the Charleston free grammar school was not simply established on paper is attested by a tombstone in St. Philip's church-yard with the following inscription, the words "Free School" being given prominence, as here indicated:

*The Rev^d Mr John Lambert
Late Master Principal and Teacher of Grammar
And Other Sciences Taught in the
FREE SCHOOL
At Charlestown for y^e Province of South Carolina
And Afternoon Lecturer of this Parish
Of St. Philip's—Charlestown—
Departed this Life (suddenly) on y^e 4th August 1729
Blessed is this servant whom his Lord when
He cometh shall find so doing*

By an act of the legislature, passed February 23, 1722, the justices of the courts were authorized to purchase lands, erect a free school in each county and precinct, *and to assess the expense upon the lands and slaves within their respective jurisdictions.* They were to appoint masters who should be "well skilled in the Latin tongue," and be allowed twenty-five pounds proclamation money per annum. Ten poor children were to be taught gratis yearly, if sent by the justices. In 1734 an act was passed, the preamble of which is so pertinent that it is here quoted:

"Whereas, By the blessing of Almighty God, the youth of this Province are become very numerous and their parents so well inclined to have them instructed in grammar and other liberal arts and sciences, and other useful learning, and also in the principles of the Christian religion, that the free school erected, authorized, and established in Charlestown for this purpose is not sufficient fully to answer the good intent of such an undertaking: And, whereas, Several of the inhabitants of this Province who have a numerous issue and live at such a distance from the said free school now established in Charlestown, that their circumstances may not be sufficient to permit them to send their children thither to be educated, whereby they may be deprived of so great a benefit; and it therefore appearing necessary that one or more schools be founded and erected in other part or parts of this Province

as shall be most convenient for carrying out so laudable a design, we therefore pray your Most Sacred Majesty that it be enacted," etc.

The author believes that the unprejudiced reader will agree with him that these do not sound like the words of those who were unmindful of the education of the young —especially when it is remembered that the population of the entire province was then but a little over seven thousand.

We shall greatly err, however, if we suppose from this that common schools were generally diffused throughout the South in colonial times. That the system was only a partial success was largely due here, as in other sections, to the utter lack of supervision. The school officers being responsible to no one, in many cases diverted the funds from their appropriate use. But yet, that both South Carolina and her neighboring Southern colonies not only made an honest effort to establish common schools, but that they actually maintained them in many cases against seemingly insuperable obstacles, must be recorded to their honor. The fact that the schools were only partially "free" was equally true in the Northern colonies, not only in colonial times, but down to a much later date. (*See Chapter XIV.*)

Nine Colonial Colleges.—At the close of our country's colonial period, nine colleges existed. Although most of these were more or less endowed and controlled by the state, they were yet denominational in character. Three were Episcopalian, three Congregational, one Presbyterian, one Baptist, and one Dutch Reformed. From their halls went forth a continuous succession of cultured and strong-minded men, well calculated to sit in the councils of the nation during her stormy Revolutionary epoch.

HARVARD, the first of these great institutions of higher

education, has been already mentioned. Its motto was "For Christ and the Church," and among its alumni are many of the most noted names in American literature.

The second of these old-time colleges, WILLIAM AND MARY, has also been referred to. It served as a type for most of the subsequent Southern colleges, and was the great training-school of Southern chivalry. Though it furnished to the nation a galaxy of brilliant lights, and graduated many of our most noted statesmen, it yet failed in one of the original humane purposes for which it was established—the education of the Indians. It is recorded that the few Indians educated within its walls, instead of going back to instruct their brethren, usually relapsed into barbarism themselves.

Connecticut, not to be outdone by her sister colony, and seeing the great advantage which Massachusetts derived from Harvard, determined, at an early date, to establish a similar institution of her own. Accordingly, ten worthy clergymen assembled in 1700, near New Haven, and each, placing a number of volumes on the table at which they were sitting, said: "I give these books for the founding of a college in this colony." This was the beginning of YALE COLLEGE, named in honor of Elihu Yale, of New Haven, who contributed liberally toward its endowment. It has sent out many illustrious men, and it vies with Harvard in the standard of its scholarship.

The College of New Jersey, commonly called PRINCETON, was founded in 1746. It was established, like its sister institutions of colonial times, for the education of Christian ministers, and it has sent forth many noted divines, and other illustrious men.

COLUMBIA COLLEGE, formerly called King's College, was founded in the city of New York in 1755. It has always

sustained a high reputation, both for classical and scientific instruction.

During the same year that Columbia was established, the UNIVERSITY OF PENNSYLVANIA was founded in Philadelphia, by Benjamin Franklin. (*See page 255.*)

BROWN UNIVERSITY, at first known as Rhode Island College, was founded at Providence in 1764, by the followers of Roger Williams.

DARTMOUTH COLLEGE was founded at Hanover, N. H., in 1769, to provide Christian education for the Indians. It has always borne a high reputation, and has sent out some of our most noted men, among whom were Daniel Webster and Rufus Choate.

RUTGERS COLLEGE, formerly called Queen's College, was established at Brunswick, N. J., in 1770, by the Dutch Reformed denomination.

Most of these institutions were closed during the Revolution.

ANALYSIS OF CHAPTER XII.

HOW LEARNING WAS PRIZED IN NEW ENGLAND BY THE EARLIEST SETTLERS : (a) The first school entry in Boston. (b) The acts of 1642 and 1647. (c) The term "grammar school." (d) What a commentator says. (e) Connecticut and Rhode Island.

THE EFFICIENCY OF THE SCHOOLS : (a) Grammar-school teachers. (b) Rural schools. (c) Salaries. (d) Female teachers scarce. (e) The text-books. (f) Classification, etc. (g) The education of girls.

The founding of Harvard.—Its sources of revenue, etc.

NEW YORK : (a) What the surviving fragmentary records of New York show. (b) What the West India Company required. (c) What the patroons were obliged to support, etc. (d) The change of 1633. (e) The schools full. (f) The qualifications of the teachers in private schools. (g) How the masters supplemented their salaries. (h) The schools in the English period, etc. (i) The conception of a State system entertained. (j) Free grammar schools in the city, etc.

EARLY EDUCATION ALONG THE DELAWARE : (a) The mixed popula-

tions. (b) Unanimity of feeling. (c) Dutch and Swede schools. (d) Everet Pietersen's work. (e) The first school for girls. (f) Provisions of the "great law." (g) Requirements that the laws be taught in the schools. (h) Provision for education in every county. (i) The expansive school spirit among the Quakers. (j) The evolution of the University of Pennsylvania.

New Jersey schools—the Burlington fund—the later laws.

SOUTHERN EDUCATION: (a) The College of William and Mary. (b) The petition from the legislature. (c) The endowments. (d) The only school helped by England. (e) Aided by taxation. (f) Characteristics of free education. (g) "Downward pressure."

THE DIFFICULTIES WHICH THE SOUTHERN COLONIES MET IN ESTABLISHING COMMON SCHOOLS: (a) The opposition of the royal governors, etc. (b) Common-school education not neglected to the extent many have supposed. (c) What the United States Commissioner of Education says. (d) Circular No. 4, 1889. (e) The act of 1712, etc. (f) What Prof. Rivers says. (g) Lambert's tombstone. (h) Schools established by taxation in every county and precinct, by act of 1722. (i) The qualifications of the masters required. (j) Preamble to the act of 1734. (k) One reason why the South Carolina schools were not more efficient, etc.

THE NINE COLLEGES AT THE CLOSE OF THE COLONIAL PERIOD: (a) Their denominational character. (b) Their value to the infant nation. (c) Harvard. (d) William and Mary. (e) Yale. (f) Princeton. (g) Columbia. (h) The University of Pennsylvania. (i) Dartmouth. (j) Rutgers.

SUPPLEMENTARY QUESTIONS.

To what causes do you attribute the educational spirit of the American Colonies?

Contrast the general characteristics of the New England colonists with those of the Middle colonists. Of the Southern.

Compare the spirit of caste in colonial times with that of the present day. How do you account for the change?

How do you account for the fact that the village "grammar schools" in the early days sustained so extended a course in Greek and Latin? Does this fact indicate that they were designed primarily for the education of the masses?

CHAPTER XIII.

THE FOSTERING HAND OF THE GENERAL GOVERNMENT IN EDUCATION.

WE have seen how, in the colonial period of our country, the educational spirit was implanted and slowly developed, in spite of many adverse circumstances. Those small beginnings were undoubtedly the germs from which the great American system of common schools has been evolved, though it was not until after the formation of our Federal Government that they began to assume anything like their present character. Indeed, it may be fairly questioned whether, without the fostering hand of the general government, our State systems of common schools would have ever attained their present high degree of excellence.

Section Sixteen.—After the erection of the original thirteen States into independent republics, and before the adoption of the Federal Constitution, the Continental Congress made the first great move toward universal education by the State. Most of the American statesmen of that early day, without regard to party, sect, or section, seem to have assumed that “a government, as the organ of society, enjoys the right, and is vested with the power, to meet the necessity of public education.” So the question of governmental aid to the cause of education seems to have met no serious opposition in the Congress of the Confederation, and no member raised his voice against it in the discussion of the ordinance of 1785, “for ascertain-

ing the mode of disposing of lands in Western Territory." This provided: "There shall be reserved the lot No. 16 of every township for the maintenance of public schools within said township."

The manner of establishing these schools, or by whom, was not mentioned. It was a reservation by the United States, and established a principle which finally dedicated one thirty-sixth part of all public lands in the United States, with certain exceptions as to mineral, etc., to the public schools. In the Continental Congress, July 13, 1787, according to order, the ordinance for the government of the "territory of the United States northwest of the river Ohio," came on, was read a third time, and passed. It contained the following :

"Art. 3. Religion, morality and knowledge being necessary to good government and the happiness of mankind, schools and the means of education shall forever be encouraged."

This policy at once met with enthusiastic approval from the public, and was tacitly incorporated into the American system as one of its fundamental organic ideas; but whether the public schools thus endowed by the United States were to be under national or State control remained a question, and the lands were held in reservation merely until after the admission of the State of Ohio.

April 30, 1802, Congress, in the act authorizing the formation of a State government in the eastern portion of the Northwestern Territory (Ohio), enacted the following proposition, which was offered for the acceptance or rejection of the convention called to form the constitution of Ohio. (Up to this time no transfers by the United States of title or control of the sixteenth section of reserved school lands had taken place.)

That the section number sixteen in every township (and where such section has been sold, granted, or disposed of, other lands equivalent thereto and most contiguous to the same) shall be granted to the inhabitants of such township for the use of the schools.

The people of Ohio complied with the above stipulation; and the act, 1803, in addition to the above, provided—

“That the following several tracts of land in the State of Ohio be, and the same are hereby, appropriated for the use of schools in that State, and shall, together with all the tracts of land heretofore appropriated for that purpose, be vested in the legislature of that State in trust for the use aforesaid, and for no other use, intent, or purpose whatever.”

Thus Congress transferred the reserved school lands, Section 16 in each township, and provided an indemnity for such sections as had already been sold or taken prior to survey, to the State of Ohio, in trust for the United States and the people of the State for schools. Prior to this, laws were silent as to how the proceeds of these reserved lands were to be applied, or by whom. Compacts between the United States and all the other States admitted into the Union prior to 1820 also contained the above provisions.

In the act for the organization of the Territory of Oregon, August 14, 1848, Senator Stephen A. Douglas inserted an additional grant for school purposes of the thirty-sixth section in each township, in all States thereafter to be admitted, making the reservation for school purposes the sixteenth and thirty-sixth sections, or 1,280 acres in each township.

Lands for Universities.—July 23, 1787, Congress, in the “Power to the Board of Treasury to contract for the sale of Western Territory,” ordered “That not more than two complete townships be given perpetually for the purpose of an university, to be laid off by the purchaser or

purchasers as near the center as may be, so that the same shall be of good land, to be applied to the intended object by the legislature of the State." Thus was inaugurated the present system of taking from the public lands, for the support of seminaries or schools of a higher grade, two townships at least, and in some instances more, to each of the States containing public lands, and special grants have also been made to private educational enterprises.

The following statement shows the number of acres embraced in the grant of Section 16, in some of the States, and Sections 16 and 36 in others, for school purposes; also, the number of acres embraced in Sections 16 and 36 reserved for the same purposes in the organized Territories.

SECTION 16.	ACRES.	SECTIONS 16 AND 36.	ACRES.
Ohio.....	704,488	California	6,719,324
Indiana.....	650,317	Minnesota	2,969,990
Illinois.....	985,096	Oregon.....	3,329,706
Missouri.....	1,109,139	Kansas.....	2,801,306
Alabama.....	902,774	Nevada.....	3,985,428
Mississippi.....	837,584	Nebraska.....	2,702,044
Louisiana.....	786,044	Colorado.....	3,715,555
Michigan.....	1,067,397	Washington.....	2,488,675
Arkansas.....	886,460	New Mexico.....	4,309,368
Florida.....	908,503	Utah.....	3,003,316
Iowa.....	905,144	Dakotas.....	5,366,451
Wisconsin.....	958,049	Montana.....	5,112,035
		Arizona.....	4,050,347
		Idaho.....	3,068,231
		Wyoming.....	3,480,281
		Total	67,893,919

The land donated by the general government to the States and Territories for university purposes amounts to nearly one and a quarter million acres. Nor is this all. By act of 1862, Congress enlarged the national educational endowment system by the donation to each State of

thirty thousand acres of public land not otherwise reserved for each senator and representative to which such State was entitled, under the apportionment of 1860, for the support of colleges for the cultivation of agricultural and mechanical science and art.

The law contained a provision for location in place and an issue of scrip in lieu of place locations. The Commissioner of the General Land Office, in 1875, in the case of the State of Colorado, ruled that the grant attaches to a new State without further legislation.

"In place" means that the States having public lands in their limits were to take such lands in satisfaction of their allowance under this law. "In scrip" means an issue of redeemable land scrip, assignable, which might be located according to law and stipulations in the act, to States which had no public lands within their limits from which their allowance could be satisfied.

The lands entered "in place" were sold by the several States and the proceeds used to endow agricultural colleges. The "scrip" was sold by the several States (in most cases) and the proceeds used for the same purpose.

The total amount of land thus generously donated to the States will, when all have been admitted, amount to about ten million acres.

Still again, by act of 1836, Congress gave the surplus of thirty million dollars, then in the United States treasury, to the several States, to be used by them for educational or other public purposes. Sixteen of the twenty-six States then organized devoted either the whole or a part of this fund for the maintenance of common schools. Eight of the States, viz.: Alabama, Delaware, Kentucky, Missouri, New York, Ohio, Rhode Island, and Vermont, appropriated the whole of their share, aggregating nearly ten million dollars, to this purpose. Eight other States devoted an

aggregate of over nine million dollars to similar purposes, so that in all more than nineteen million dollars of this munificent donation went directly to the support of common schools.

All these magnanimous donations from the general government have greatly encouraged the formation of schools in the newer States, and by their reflexive power they have doubtless exerted a salutary influence on the educational institutions of the older States.

Distribution of Permanent Funds.—It will be seen by the original wordings of the acts which donated lands for the support of common schools that it was evidently intended that each township should receive the proceeds of its own section, and in the case of some of the first States receiving the donation, this plan was adopted. But as the land in some townships was much more valuable than in others, this system afforded some townships almost sufficient revenue for the entire support of their schools, while in others, where the land was poor, and where in consequence the help of the government was most needed, it afforded little revenue. This was so manifestly unjust, and so contrary to the spirit of the laws which made the grant, that, in most cases, the lands have been given to the States as a whole, and the proceeds of their sale or rent has been distributed pro rata to the various districts of the State. In most cases these funds have been wisely invested, and the most sanguine advocates of the educational land-grants could scarcely have anticipated more desirable results than have been achieved.

Not the least of the salutary influences of these great donations has been the fact that they have necessitated the establishing of State educational systems; and so, in most of the newer States, these great interests have been placed, from the very first, under competent supervision—and it is

to this that the educational systems of the Western States, in particular, owe much of their present high degree of efficiency. In nearly every case there has been a State Superintendent of Public Instruction, vested with general supervisory powers; a county superintendent, to whom is entrusted the more personal supervision of the schools of his own county; while the local control of each district, with certain limitations, has been wisely entrusted to its own board of directors.

It is evident that as the States grow older, and their population increases, the relative amount of their revenue from the permanent school funds (the interest on money received for the sale of school lands or money received for their rent) must gradually decrease; but as the various districts are then, for the most part, abundantly able to support their schools from local taxation, the falling off is scarcely felt. The help from the general government is greatest at the time when such help is most needed—when the pioneers are making themselves homes on the frontier, and when, owing to the sparseness of the population, the burden of supporting efficient schools unaided would be most oppressive.

Tables of Permanent Funds.—The following tables will show the relative amount of support which the various sections of the United States *now* receive from the permanent school funds, as well as from other sources:

Section. (For States included, see page 226.)	School revenue per cap- ita of population 6 to 14.				School revenue per cap- ita of average at- tendance.			
	From permanent funds and rents.	From State taxes.	From local taxes.	From other sources.	From permanent funds and rents.	From State taxes.	From local taxes.	From other sources.
North Atlantic.....	.24	2.07	11.90	.84	.34	3.58	16.61	1.20
South Atlantic.....	.08	1.83	1.75	.35	.14	3.27	3.13	.62
South Central.....	.18	1.18	1.60	.23	.36	2.13	2.88	.42
North Central.....	.20	1.36	10.29	1.03	1.57	1.78	13.46	1.37
Western.....	.88	5.78	11.55	1.39	1.18	7.76	15.52	1.87
United States....	.64	1.90	7.42	.75	.95	2.77	10.92	1.12

PERCENTAGE OF THE WHOLE REVENUE RECEIVED FROM EACH SOURCE
NAMED.

Section.	Interest on per- manent funds and rent of school lands.	State taxes.	Local taxes.	Other sources.
North Atlantic.....	1.53	17.06	76.04	5.37
South Atlantic.....	2.00	45.64	43.64	8.72
South Central.....	5.64	36.99	50.16	7.21
North Central.....	8.65	9.80	74.14	7.41
Western.....	4.49	29.49	58.93	7.09
United States....	5.98	17.74	69.28	7.00

It is seen from the foregoing that from the very inception of the general government down to the present time its policy has ever been to lend its aid to the establishing of

common schools, as the surest guarantee of its own perpetuity, as well as for the happiness of the people. And yet, with a hundred years of unbroken precedents staring them in the face, there are those who profess to believe that there are no precedents authorizing the passage of an educational bill proposing to distribute a necessary amount among the States for educational purposes in the ratio of the illiteracy of their population ! The main object is, of course, to render aid to the war-impoverished South in her efforts to educate the freedmen and remove the dark and ominous cloud of illiteracy which hangs over that section of our country. And when it is remembered that between the years 1870 and 1890 the Southern people have, out of their penury, expended more than forty million dollars for the purpose of educating the children of their old-time slaves, it would seem that every impulse of humanity, as well as public safety, should prompt the passage of this most righteous and much-needed law.

ANALYSIS OF CHAPTER XIII.

The American system of common schools not fully developed until after the Revolution.

The Continental Congress makes the first great movement toward universal education.—(a) The ordinance of 1785. (b) The ordinance of 1787 and its provisions. (c) The question of control unsettled until 1802.

The act of Congress in admitting Ohio. (a) 1802. (b) 1806.

Compacts in admitting other States prior to 1820. The provisions of 1848, admitting Oregon. The act in regard to university lands, 1787.

Table showing land received by the States for common-school purposes.

The grant of 1862 for Agricultural Colleges. (a) Meaning of "In place" and "In scrip." (b) Amount of land thus given.

The surplus of 1836, and its distribution.

All these grants have tended to encourage the early establishing of

school systems by the new States, and have exerted a reflex influence on the old.

The earliest, and the more recent and better method of applying the proceeds of the common-school lands.

How the grants have tended to uniformity in the formation of school systems in the States. The nature of the systems formed.

Why the relative amount of revenue from permanent school funds decreases as the States grow. Why this works no hardship.

Table showing the relative amounts of revenue in the various sections of the United States from the permanent school funds.

Table showing percentage from each source of revenue.

SUPPLEMENTARY QUESTIONS.

Can you trace any connection between the American educational system and the recent great awakening in Europe?

What educational institutions has the general government established and maintained on its own responsibility?

What branch of instruction is provided by the general government in many of our denominational colleges?

Would you, or would you not, regard this as establishing a legal precedent in favor of the State supplying other non-sectarian professorships in these higher institutions? Why, or why not?

CHAPTER XIV.

THE DEVELOPMENT OF THE AMERICAN SYSTEM OF COMMON SCHOOLS.

WE have seen that the germs of the common-school system of the United States were planted alike in the New England, the Middle, and the Southern colonies very early in their history ; but these small beginnings were *only* germs. It needed the genial warmth and light of freedom's sun to develop them. The "free" element in these early schools applied in the main only to such children as were too poor to pay tuition ; and it is easy enough to understand the influence which such a distinction would foster in any community. It tended directly to engender that most non-American of institutions—*caste in society*. The stigma of pauperism cast upon a child is of all things most ruinous to its self-respect, and the result of the charity feature of the early schools was that poor but intelligent parents, in many cases, rather than subject their offspring to such blighting influences, preferred to retain them at home. The would-be aristocrats looked with equal disfavor on the "free schools," because some of the "pauper element" *did* attend them, and because they, therefore, feared their own children might lose caste from seeming to associate with this class of people.

School Rates.—With the inauguration of the Republic a new era dawned upon the land, and the old aristocratic notions began gradually to give way. But the inertia of

established customs is hard to overcome, and it was long before the obnoxious school-rate system yielded in the older States, though its evil effects grew less and less apparent as the population became more and more American in spirit. In the newer States, especially in the great Northwest, owing in part to the influence of the beneficent grants of the general government, but more to the democratic spirit so characteristic of the frontier, the common schools were, as a rule, made wholly free from the first; and this, no doubt, re-acted strongly on the older States. Still they clung to the old-time system of "rates" with wonderful tenacity, and it was not until toward the close of the first quarter of this century that elementary instruction was made "public" in its present sense, even in Boston; nor was the system generally adopted in other sections of Massachusetts until some time later. In fact, it was not until within the last quarter of a century that the older States generally sloughed off the anti-American features of their systems and made the schools entirely free to all.

The "fees" in the old-time schools took different forms in different sections; but they were generally assessed at a certain *pro rata* part of the cost of tuition. In the rural districts the rate usually included also the board of the teacher; while in Rhode Island the pupils were assessed for *fuel* up to 1833; and it was not until 1848 that the fees were entirely abolished in that State. In Vermont the tuition system was retained until 1864; in New York until 1867; in Connecticut until 1868; and in New Jersey until 1871.

Growth of Free Schools.—As each State is at liberty to manage its own educational affairs in its own way, it is not strange that there should have been much diversity in the development of the various State systems; but the careful student can easily trace through the history of

most of them, not only a gradual advance, but also an equally gradual approximation toward one great system—the public, non-sectarian, non-partisan education of every child within our borders. This seems to have been the legitimate outgrowth of the genius of our system of free government, and is its most natural concomitant.

At the close of the Revolution, educational institutions of every kind were naturally in a chaotic state; but the various colonies, as well as the general government, were awake to the necessity of an intelligent citizenship, and seven of the new republics proceeded to introduce general educational provisions into their constitutions. Of the remainder, two continued for some time under their colonial charters, and the rest adopted constitutions which guaranteed all the powers and privileges involved in the establishment of schools. Five, at least, proceeded by specific legislation to develop common-school systems.

Nor was the movement in the cause of popular education, at this period, confined to either State or general government—the public mind was aroused to the importance of the subject. Dr. Benjamin Rush, of Pennsylvania, but ten years after affixing his name to the Declaration of Independence, memorialized the legislature of his State in favor of a thorough system of popular education—urging “that it was favorable to liberty, as freedom could only exist in an intelligent community; that it favors just ideas of law and government; that learning in all countries promotes civilization and the pleasure of society; that it fosters agriculture, the basis of national wealth; that manufactures of all kinds owe their perfection chiefly to learning; that its beneficial influence is thus made co-extensive with the entire scope of man's being, mortal and immortal, individual and social.” At a later period, the same great man addressed a congressional representative from Pennsylvania,

declaring that "the attempts to perpetuate our existence as a free people by establishing the means of national credit and defense" are "feeble bulwarks against slavery compared with the habits of labor and virtue disseminated among our people;" adding, "Let us establish schools for that purpose in every township in the United States, and conform them to reason, humanity, and the state of society in America," and then will "the generations which are to follow us realize the precious ideas of the dignity and excellence of republican forms of government."

Neither was this early appreciation of the value of common schools in a government of the people, by the people, and for the people, confined to any one section or party. That there were prominent men in the South who keenly felt the need of popular education by the government is seen from a conversation that General Francis Marion, of South Carolina, the "Swamp Fox," held with his biographer, in 1795 :

We fought for self-government ; and God hath pleased to give us one better calculated, perhaps, to protect our rights and foster our virtues and call forth our energies and advance our condition nearer to perfection and happiness than any other government that ever was framed under the sun. But what signifies this government, divine as it is, if it be not known and prized as it deserves ? *This is best done by free schools.*

Men will always fight for their government according to their sense of its value. To value it aright they must understand it. This they can not do without education. And, as a large portion of the citizens are poor, and can never attain that inestimable blessing without the aid of government, it is plainly the duty of government to bestow it freely upon them. The more perfect the government, the greater the duty to make it well known. Selfish and oppressive governments must hate the light and fear to come to it, because their deeds are evil. But a fair and cheap government, like our republic, longs for the light, and rejoices to come to the light, that it may be manifested to come from God, and well worthy of the vigilance and valor that an enlightened

nation can rally for its defense. A good government can hardly ever be half anxious enough to give its citizens a thorough knowledge of its own excellencies. For, as some of the most valuable truths, for lack of promulgation, have been lost, so the best government on earth, if not widely known and prized, may be subverted.

It was one thing, however, to legislate in favor of popular education, while to put such a system into successful operation, with neither school-houses, rational text-books, nor reasonably competent teachers, was quite another.

Old-time Teachers.—The houses were not so difficult to provide in a land where logs and labor were plentiful ; but the procuring of suitable books and competent teachers was a more serious problem. The following extract from the preface of Lee's Arithmetic, written in 1797, gives some light regarding the material from which the common-school teachers of that day had in many cases to be drawn :

The boy, advanced perhaps some way in his *teens*, is sent to a winter school for two or three months to complete his education ; for he can not attend in any other season, nor then indeed but quite unsteadily. But as he is almost a man, he must go to school to *cypher* ; and as he has but a short time for the business he must *cypher* fast. He goes to school, vulgarly speaking, *raw*, perhaps scarcely able to form an arithmetical figure. His master *sets him a sum* in adding, and it may be he tells him he must *carry one for every ten* ; but *why*, is a mystery which neither master nor scholar gives himself any trouble about ; however, with a deal of pains he at length *gets his sum done*, without ever being asked or knowing how to read the sum total, or any number expressed in the statement. (I have actually known a lad of eighteen, who after having, in this way, gone over all the first rules of arithmetic, at a common school, was utterly unable to read or enumerate any number consisting of four places of figures.) But it is *cyphering*, and that is sufficient. If he is taught to commit any of the rules to memory, he learns them like a parrot, without any knowledge of their reason, or application. After this manner he gropes along from rule to rule, till he ends his blind career with the *Rule of Three* ; and in the end, the only and the truest account

he can give of the whole is, that he has been *over it*. But he has completed his school education, and is well qualified to teach a school himself, the next winter after.

Had the teachers of this period been simply *ignorant*, the case might not have been so bad; but there is abundant evidence that many of them were grossly immoral as well. The teacher's calling had become so degraded by illiterate adventurers and others in some sections, before the beginning of the war, that to raise it now to a standard of even respectability was no light task. A writer in 1763 states that "at least two-thirds of the education of his day in Maryland was derived from instructors that were either indentured servants or transported felons." "Not a ship arrives," he states, "either with redemptioners or convicts, in which schoolmasters are not as regularly advertised for sale as are weavers, tailors, or any other tradesmen."

A few years later the country was overrun with English and Irish adventurers, who took upon themselves the profession of teaching—being fit for nothing else. Dr. Darlington, of Pennsylvania, characterized the country schoolmaster in 1788 as being "often a low-bred, intemperate adventurer of the Old World," and further affirms that he was on a par with the popular estimate of the teacher's profession at that time. In a pamphlet issued in 1791, the teacher of the period is described as a "foreigner, shamefully deficient in every qualification for instructing youth, and not seldom addicted to gross vice."

A writer in the early part of this century speaks of the backwoods teachers in the South as follows: "Careless, inefficient teachers are employed; in some of the lower districts they have actually converted the schools into gymnastic academies, where, instead of studying philosophy in the woods and groves, as the Druids did of old, they take

delight in the more athletic exercise of deer and rabbit hunting; and it is a fine sight to see the long, lean, serpentine master . . . at his stand, . . . while the younger peripatetics are scouring the woods and hallooing up the game." It is also hinted that some of these "long, lean" gentlemen had an understanding with their directors by which they divided the school funds among themselves.

With such standard-bearers, it is not strange that during the first quarter of this century the progress of the common schools was slow, and that the common-school system was equally slow in gaining friends. There were, however, some honorable exceptions to the classes of teachers above described, and there were even among the pioneer pedagogues of the Republic some veritable educational reformers. Such, for example, was Christopher Dock, of Pennsylvania, who, it is affirmed, actually used a blackboard in his schools, and taught primary arithmetic in a rational way, even before the Revolution. There, too, was Chauncey Lee,* of Eastern New York, who in 1797 proposed a metric system of weights and measures, which, had it been adopted, would certainly have had some advantages over the present metric system. Mr. Lee's plan

*The following from Lee's Arithmetic, published just as our Federal money was first coming into use, shows clearly the true significance of our dollar sign, on which so much ingenious speculation has been expended:

TABLE OF FEDERAL MONEY (1797).

10 Mills () Make 1 Cent, characteristic, |	
10 Cents	Make 1 Dime, " "
10 Dimes	Make 1 Dollar, " "
10 Dollars	Make 1 Eagle, " E

This is plainly the genesis of the \$. The single mark means mills, the double mark cents; the double mark with a single slightly curved cross, dimes; and with a double cross, dollars. As the denomination "dimes" is not used in business transactions, its characteristic soon disappeared, and in rapid writing the dollar characteristic assumed its present slightly modified form.

was to let the principal unit of each table remain unchanged, and arrange a system of decimal multiples and subdivisions of this. Such a system could easily have been adopted, without causing the confusion incident to an entire change, such as the present metric system involves. His proposed table of liquid measure was as follows—the gallon remaining unaltered:

10 Pints make 1 Gallon,
10 Gallons " 1 Federal Barzel,
10 Barrels " 1 Hogshead.

It is evident that the above table, and most of the others proposed by this wide-awake Yankee, might easily have been put in use had Congress seconded his efforts.

Then, too, the various colleges, which at the close of the war began rapidly to multiply, both in numbers and influence, were sending out constant streams of students to teach in the rural schools. We catch a glimpse of the beneficent influence of this class of teachers on the rural districts, during the early part of this century, from Whittier's inimitable *Snow-Bound*,* and as time advanced and

* Brisk wielder of the birch and rule,
The master of the district school
Held at the fire his favored place.
Its warm glow lit a laughing face,
Fresh-hued and fair, where scarce ap-
peased

The uncertain prophecy of beard.
Born the wild, Northern hills among,
From whence his yeoman father wrung
By patient toil subsistence scant,
Not competence and yet not want,
He early gained the power to pay
His cheerful, self-reliant way;
Could doff at ease his scholar's gown
To peddle wares from town to town,
Or through the long vacation's reach
In lonely lowland district's teach.

Happy the snow-locked home wherein
He tuned his merry violin,
Or played the athlete in the barn,
Or held the good dame's winding yarn,
Or mirth provoking versions told
Of classic legends rare and old,
Wherein the scenes of Greece and Rome
Had all the common-place of home,
And little seemed at best the odds
'Twixt Yankee peddlers and old gods.

A careless boy that night he seemed;
But at his desk he had the look
And air of one who wisely schemed,
And hostage from the future took
In trained thought and lore of book.

higher institutions of learning multiplied, their influence for good on the teaching force became more and more potent and salutary.

Early Text-books.—The second great hinderance to the rapid progress of the schools, both before and after the Revolution, was the want of suitable text-books. Some of the books in use during colonial times were referred to on page 250 ; and these continued on into the second quarter of this century in certain sections, though after the Revolution school-books began to multiply.

Dilworth's Spelling Book, by the author of the fearfully and wonderfully made arithmetic from which quotations were made on pages 97 and 98, had been introduced into this country about the middle of the eighteenth century. This book also contained a grinning skeleton of English grammar, and it remained in use to some extent until within the memory of men still living. There were several other spellers of various grades of dullness ; and one by Mr. Pierce, a Pennsylvania teacher, also contained the rudiments of grammar. But the *great* speller of the age was Webster's, first published about the close of the Revolution. It went through many editions, and was still in general use down to the middle of this century. It served one great purpose, if no other—it furnished its author with funds during the twenty years he was laboring on his world-renowned dictionary. During many years, more than a million copies of this dingy old blue-covered book were annually sold.

In 1785 Mr. Webster also wrote a Reader—the “Third Part” of his “Grammatical Institute of the English Language.” The modest title of this book was, “*An American Selection of Lessons in Reading and Speaking ; Calculated to Improve the Mind, and refine the Taste of Youth ; and also to instruct them in the Geography, History and Poli-*

tics of the United States. To which are prefixed Rules in Elocution and Directions for giving Expression to the principal Passions of the Mind." With such an outfit it could seem that little more in the way of text-books could have been needed ! This book had also a large sale, having no rivals worth the mentioning until near the close of the century. Then came Bingham's "American Preceptor" and "The Columbian Orator." After this came the "English Reader," containing an admirable list of selections, though without any attempt at grading. Then came the "American Moralist," "The Art of Reading," and Goldsmith's "Roman History." Another reading-book of the early part of this century was Webster's "Account of the Historical Transactions of the United States after the Revolution." This, of course, was an effort to combine the studies of history and reading, as has been so often done in later years.

It is said that the earliest arithmetic published in the New World was a work by a man named Hodder, about the first of the eighteenth century. The title of his book was, "Arithmetic, or that necessary art made most easy ; being explained in a way familiar to the capacity of any that desire to learn in a little time." It passed through many editions, and for years was practically the only text on the subject of "*cyphering*" in use. The statements here made regarding this last-named work are drawn from Boone's "Education in the United States," as are many others in this chapter, and they are, no doubt, correct ; though in case the book was published at the early date here given, it was certainly not then known in England. In the preface to Dilworth's Arithmetic ("Schoolmaster's Assistant"), published about 1742, we learn that up to that time no text of any kind had been in use. Says its author :

"I should have been very glad to have seen an Attempt of this Nature stamp'd by the Authority of some Person of Distinction and of better Abilities ; *but since no abler Hand has undertaken it*, I hope its homely Appearance will not lessen its Usefulness."

After this come a number of testimonials, ending with the following signed by a long list of teachers :

We whose Names are underwritten, having perused this Book intitled, THE SCHOOL MASTER'S ASSISTANT, do recommend it to be used in SCHOOLS, for the speedy Improvement of Youth in Arithmetic, *as the only one for that purpose that has yet been made public.*

It is evident from this that English pedagogues knew of no work on arithmetic in the English tongue prior to 1742. There was an American reprint of this work in Philadelphia in 1790, and it is probable that copies of the English edition had been in use in the colonies for many years. The fact that a reprint of this book was issued fifty years after its first publication does not speak well for the text-book progress of the age.

The most famous of the old-time arithmetics were Pike's and Daboll's. The former was first issued about the beginning of the Revolution. This was a rather more pretentious work than its predecessors, containing an appendix of forty pages of algebra for the use of academies. Daboll's Arithmetic was issued about the same time, and is well, if not *favorably*, remembered by many who have not yet reached their allotted three score years and ten.

Among the early works on language were Bailey's "English and Latin Grammar," issued early in the seventeenth century, and Cheever's "Latin Accidence," first published in 1645, and reissued from time to time during the succeeding two hundred years. Bingham's "Young Lady's Accidence," issued 1790, is noted as the first work on English grammar used in the Boston schools. But

the most famous of the pioneer works on grammar was that of Lindley Murray, published first in England, and reissued in America about the beginning of this century. It has been regarded as legitimate plunder for many who have since written on the subject, and has recently been republished.

It seems that little was attempted in the way of geography till about the time of the Revolution, when Jedediah Morse's "Universal Geography" was introduced. This was a little 18mo volume, containing four maps, and was practically the only book of the kind in use for many years.

Mention has been already made of Webster's historical reader (1788). About 1791, a new edition of Morse's Geography was issued, containing "Historical Accounts of the European Settlements in America, the Thirteen States; and of Europe, Asia, and Africa." Other histories were regularly issued as our country grew, and some of these earlier works are extremely interesting reading. That a deep interest was early felt in this important branch of study is evidenced by the following :

At a meeting of "The American Academy of Language and Belles Lettres," held in the city of New York, October 20, 1820, the following preamble and resolution were unanimously adopted :

As the proper education of youth is in all communities closely connected with national prosperity and honor ; and as it is particularly important, in the United States, that the rising generation should possess a correct knowledge of their own country, and a patriotic attachment to its welfare.

Resolved, That a premium of not less than \$400, and a gold medal worth \$50, be given the author, being an American citizen, who within two years shall produce the best written history of the United States, and which, with such history, shall contain a suitable exposition, character, and interests, absolute and relative, of the American Republic, calculated for a class-book in academies and schools. This work is to

be examined and approved by a committee of the institution, in reference to the interest of its matter, the justness of its facts and principles, the purity, perspicuity, and elegance of its style, and its adaptation to its intended purpose. By order of the Academy—Alex. McLeod, Sec'y.

Four authors competed for the above prize, and the committee, after a careful comparison of the merits of the books presented, awarded the prize to Salma Hale for his work, entitled "A History of the United States, from their first Settlement as Colonies to the Close of the War with Great Britain, in 1815."

A half-hour's perusal of this dingy little book will convince any one that the Academy's premium was wisely awarded. Different editions were issued from time to time, as the history of the country grew—one in Cincinnati as late as 1849.

As a further evidence of the interest felt in the study of our country's history in the early years of this century, Mr. Hale states in the preface to his first edition that he had begun the work many years before, *but as several other works on a similar plan had appeared before its completion*, he laid it aside, until seeing the award offered by the Academy, he concluded another book must be needed, and so took courage to finish it.

But, generally, the school-books of the earlier part of this century, though a great improvement on their predecessors, are not to be compared in excellence either of authorship or mechanical and artistic execution with those of the present.

There has been constant progress all along the line in every department of school work, but in nothing else so much as in the text-books of the common schools, and perhaps in no other department is the progress so noticeable as in the style and execution of our reading-books. It is but little more than half a century since any attempt

was made at grading the reading-books placed in the hands of the little folks, and the style of matter and general make up of the readers were of a nature to repel rather than to attract a child. It is, in fact, only within the past generation that writers for children have learned to adapt their style and their vocabulary to the child-mind. Here is an extract from the *Youth's Companion* of 1836, and it fairly illustrates the style of literature that was considered the proper thing for the nursery fifty years ago ; in fact, it is from that department of the *Companion* headed "The Nursery :"

A TALK WITH MY LITTLE DAUGHTER.

Juliana.—I rose very early this morning, mother, have got all my lessons for the day, attended to my work, and have been anxiously waiting for you to come in and finish the account about infanticide.

Mother.—I love to have you diligent, my daughter, and am willing that you should be prompted by curiosity to press forward in the acquisition of knowledge, but I want you to be influenced by a higher and more noble motive even, that of glorifying God. We will, however, proceed with the account without too much digression.

Here, too, is a picture of the model household and the good little boy, from the same paper :



The following spirited cut, from another number of the

same paper, illustrates the ideal school and teacher fifty years ago :



ANALYSIS OF CHAPTER XIV.

The colonial schools only the germs of the American system. The “free” element in these schools, and its non-American influence. The result of this (*a*) on the poor; (*b*) on the rich. The change that came with the Republic.—Why slow. The systems in the newer States entirely free, owing (*a*) to land grants; (*b*) to the democratic spirit of the frontier.—Their influence on the older States. The school-rates cling on in Boston, etc. The “fees” have different significance : (*a*) Usually for tuition. (*b*) Board, etc., of teachers. (*c*) Fuel. (*d*) Abolished in Rhode Island, 1848. (*e*) Vermont, 1864. (*f*) New York, 1867. (*g*) Connecticut, 1868. (*h*) New Jersey, 1871.

Why the systems took different forms. What the careful student of history may still trace.

The chaotic condition at the close of the Revolution. The colonies and general government awake to educational interest. The public mind also awakened, as illustrated by (*a*) Dr. Rush, of Pennsylvania; (*b*) General Marion, of South Carolina. Difficulties in the way : (*a*) No

school-houses, etc. (b) Lack of suitable teachers; as illustrated (1) From Chauncey Lee's statement in his Arithmetic. (2) What a contemporary writer says of the Maryland teachers. (3) The country overrun with foreign adventurers who taught (?) school. (4) Dr. Darlington's statement regarding Pennsylvania teachers, at the close of the war.—The popular estimate of the profession. (5) Pamphlet of 1791. (6) The Southern "peripatetics." Honorable exceptions: (1) Christopher Dock and his work. (2) Chauncey Lee and his efforts. (Origin of the \$.) (3) The college student's influence, as illustrated from "Snow-Bound." (c) The progress hindered by the lack of proper books. (1) Those already referred to on pages 97 and 98. (2) Dilworth's Spelling Book. (3) Pierce's and others. (4) Webster's and its wide use. (5) Webster's Reader and its title. (6) Bingham's American Preceptor, the Columbian Orator, English Reader, etc. (7) The first combination of history and reading. (8) Hodder's Arithmetic. (9) Dilworth's School-Master's Assistant," and its claims.—The American reprint. (10) Pike's and Daboll's Arithmetics. (11) Early grammars. (12) Early geographies. (13) The beginning of history in schools. (14) The "premium history." (15) None of these books can compare with those of the present. (16) Progress in reading matter for children.—*Youth's Companion* in 1836.

SUPPLEMENTARY QUESTIONS.

What were some of the causes that retarded the progress of the common-school system in the Southern States before the late war?

Can you show that common schools and higher institutions of learning are reciprocally helpful to each other?

How do you account for the decline of "classical education" during the past quarter of a century?

Does it seem to you that the present curriculum of the common schools could be much improved? If so, in what particulars?

What do you regard as some of the most serious obstacles that are liable to beset the schools in the future? How can they be averted?

CHAPTER XV.

THE PRESENT AMERICAN SYSTEM OF COMMON SCHOOLS —GLEANED PRINCIPALLY FROM THE REPORTS OF THE COMMISSIONER OF EDUCATION.

THOUGH, as was shown in Chapter XIII, the general government has ever fostered educational institutions, and has done much to encourage the individual States in establishing and maintaining common-school systems, each State is yet wisely left to manage its own schools in its own way. There is, however, such unity of feeling among the various sections that the school systems developed have, for the most part, much in common, and there can, without impropriety, be said to be an American system of common schools.

Each individual State has, indeed, a system of its own; but those of the same section are usually so nearly allied that, in our limited space, we can best study them in groups. It is evident, however, that when comparisons are made the statistics on which they are based must be reduced to the same standard, or prove mischievously misleading. Probably the one item on which there is the widest diversity is that of "school age"—ranging, as it does, from eight to sixteen in Texas, to "all ages" in Massachusetts. The following table will show the school age for free attendance, for compulsory attendance, and for distribution of funds in the various States and Territories. The grouping here given will be the one adhered to when "divisions" are subsequently mentioned:

TABLE OF SCHOOL AGES.

STATES, TERRITORIES, AND DIVISIONS.	Free attendance age.	Compulsory attend- ance age.	Age for distribution of funds.	STATES, TERRITORIES, AND DIVISIONS.	Free attendance age.	Compulsory attend- ance age.	Age for distribution of funds.
North Atlantic Div.:				North Central Di- vision:			
Maine.....	4-21	6-16	4-11	Ohio.....	6-21	8-14	6-21
New Hampshire..	5-21	8-14	5-21	Indiana.....	6-21	o	6-21
Vermont.....	5-20	8-14	5-20	Illinois.....	6-21	8-14	6-21
Massachusetts....	all ag.	8-14	5-15	Michigan.....	5 up.	8-14	5-20
Rhode Island....	5 up.	7-15	5-15	Wisconsin.....	4-20	o	4-20
Connecticut.....	4-16	8-16	4-16	Minnesota.....	5-21	8-16	5-21
New York.....	5-21	8-14	*	Iowa.....	5-21	o	5-21
New Jersey.....	5-18	7-12	5-18	Missouri.....	6-20	o	6-20
Pennsylvania.....	6-21	o	†	North Dakota.....	6-20	8-14	6-20
South Atlantic Div.:				South Dakota.....	6-20	8-14	6-20
Delaware.....	6-21	o	6-21	Nebraska.....	5-21	8-14	5-21
Maryland.....	6-21	o	5-20	Kansas.....	5-21	8-14	5-21
Dist. of Columbia.	6-17	o	.....	Western Division:			
Virginia.....	5-21	o	5-21	Montana.....	6-21	8-14	6-21
West Virginia.....	6-21	o	6-21	Wyoming.....	6-21	6-21	6-21
North Carolina....	6-21	o	6-21	Colorado.....	6-21	o	6-21
South Carolina....	6-18	o	†	New Mexico.....	5-20	.....	5-20
Georgia.....	6-18	o	6-18	Arizona.....	6-18	o	6-18
Florida.....	6-21	o	6-21	Utah.....	6-18	o	6-18
South Central Div.:				Nevada.....	6-18	8-14	6-18
Kentucky.....	6-20	o	6-20	Idaho.....	5-21	8-14	5-21
Tennessee.....	6-21	o	6-21	Washington.....	6-21	7-15	5-21
Alabama.....	7-21	o	7-21	Oregon.....	4-20	o	4-20
Mississippi.....	5-21	o	5-21	California.....	6-21	8-14	5-17
Louisiana.....	6-18	o	6-18	Alaska.....	all ag.	6-14	.....
Texas.....	8-16	o	8-16				
Arkansas.....	6-21	o	6-21				

To base comparison on ages so diverse as the above would be so obviously misleading that the comparisons might justly be styled "odious." Whenever comparisons are here made they will, therefore, be reduced to the uniform basis of six to fourteen—the natural time required to complete the common-school course of eight years.

It will be seen from the table that twenty-four States

* Distributed in part according to total population.

† Distributed according to number of taxable citizens.

‡ Distributed according to attendance.

and Territories have compulsory attendance laws, and that twenty-five have not.

The compulsory school age, unlike the free attendance age, has one well-defined characteristic, which the geographical classification adopted in the table clearly exhibits ; it is entirely wanting in the two Southern divisions.

Every North Atlantic State has compulsory attendance laws except Pennsylvania, and the same is true of every North Central State except Indiana, Iowa, Wisconsin, and Missouri. "In many instances, however," says the Commissioner of Education, "the compulsory laws, if not actually dead letters, are practically so." It will be seen that the compulsory education age in most States covers a period of six years, from the age of eight to that of fourteen.

In the proportion of children enrolled in the public schools, the North Central States are at present far in the lead, having one hundred and twenty-one pupils in the public schools for every one hundred children six to fourteen years of age.

Notwithstanding the tremendous strides that have been taken in the development of the school systems of the Southern States during the last ten years, they are still far behind the Northern States in regard to *proportion of children* enrolled in the public schools. In the South Atlantic States only eighty-nine, and in the South Central States only seventy-nine, children out of every one hundred, six to fourteen years of age, are enrolled. This results in a great degree from the excessive proportion of children to grown persons met with in the Southern States ; for if we compare the *proportion of total population* enrolled, the disparity which appears to the prejudice of the Southern States largely disappears, as will be seen from the annexed *table*.

TABLE OF ENROLLMENT, ETC.

DIVISIONS. (For States included, see page 291.)	Total enrollment, ex- cluding duplicates.	Annual increase.	Per cent. of increase annually.	Average number en- rollment to each 100 of total popu- lation.	Average number en- rolled to each 100 of population 6 to 14.
North Atlantic.....	3,065,272	21,518	.71	19.43	114.70
South Atlantic.....	1,649,455	49,600	3.10	19.06	89.12
South Central.....	1,859,521	61,500	3.48	17.49	78.92
North Central.....	4,829,767	155,154	3.32	23.57	121.14
Western.....	401,645	18,000	4.09	16.86	105.53
United States.....	11,805,660	305,772	2.66	20.38	104.97

No account is taken here of the *duration* of attendance at school, but only of the circumstance that the pupils' names were on the school registers. If the element of time is taken into consideration, the South appears much more at a disadvantage.

One other great advantage which the Northern States possess is the much larger number of taxpayers in proportion to the number of children to be educated. Even if the relative wealth of the North and South were equal, which is far from being the case, each taxpayer of the former section would have a far less burden to bear in the work of getting all the "schoolable" children within the schools, since nearly all the burden of taxation rests upon the white population.

Said the late Hon. Henry W. Grady, of Atlanta, Ga., at the Boston Merchants' Banquet, December 12, 1889: "Since 1865 the South has spent \$122,000,000 in education, and this year it is pledged to \$37,000,000 more. Although the blacks pay but one thirtieth of the taxes, they get nearly one half of the funds."

According to recent returns, the number of pupils daily

attending all the public schools in the United States while they are in session is, on an average, 7,571,416.

As in the case of enrollment, it is not possible to determine the exact yearly increase, but a very fair approximation places it at 218,500, or at the yearly rate of 2.89 per cent.

The greatest increase in average attendance is observable in the South; in both of the Southern divisions it is not only remarkably large, but it is to be noted that it exceeds the increase of enrollment; in other words, not only more pupils are going to school there, but also the attendance of those who do go is more regular. This is an evidence of increased appreciation of public schools not to be overlooked.

TABLE OF AVERAGE ATTENDANCE.

DIVISIONS. (For States included, see page 291.)	Average daily attendance.	Annual increase.	Increase, per cent.	Number of pupils in average daily attendance to each 100 of—			Average number of pupils in attendance to a teacher.
				Total population.	Population 6 to 14.	Enrollment.	
North Atlantic.....	1,995,392	8,300	.42	12.65	74.67	65.10	28.06
South Atlantic.....	1,035,654	54,400	5.54	11.97	55.95	62.79	26.92
South Central.....	1,218,223	64,500	5.59	11.46	51.70	65.51	....
North Central.....	3,055,011	81,700	2.75	14.91	76.63	63.25	24.79
Western.....	267,136	9,600	3.76	11.22	70.19	66.51	23.59
United States.....	7,571,416	218,500	2.89	13.07	67.32	64.13	25.29

It will be seen that the rate of average attendance for the United States (2.89 per cent.) exceeds slightly the rate of increase of enrollment (2.66 per cent.); this indicates a greater regularity of attendance for the country at large.

The average for the United States is 64.13; that is, for every one hundred pupils enrolled during the school year

sixty-four attend daily, on an average, during the sessions of the schools; or, looking at the matter in another light, each pupil enrolled is present, on an average, sixty-four days out of every one hundred his school is in session.

It will also be seen that regularity of attendance is greatest in the Western division (66.51), and least in the South Atlantic division (62.79), but that it is nearly uniform in the different sections of the country; more so, perhaps, than any other single item which admits of statistical record.

This regularity of attendance is far from being as high as is to be desired. Compulsory attendance laws do not seem to affect it to any appreciable extent, as it is somewhat higher in the South Central States, where there are no compulsory laws, than in the North Central States. It will probably depend for improvement upon a growing appreciation of the benefits of a public-school education. Such as it is at present, however, it is far in advance of any former period, and the progress it has made in the last semi-decade is especially noteworthy. This virtually uninterrupted growth in the regularity of school attendance will become very apparent from an inspection of the following tabular statement:

Ratio of average daily attendance to enrollment at various periods since 1871-72; computed from the Annual Reports of the Bureau of Education.

YEAR.	The United States.	North Atlantic Division.	South Atlantic Division.	South Central Division.	North Central Division.	Western Division.
	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.	Per ct.
1871-72 .....	.....	59.29	58.26	.....	57.14	.....
1876-77	60.31	60.95	57.19	.....	59.40	61.42
1881-82	66.67	61.67	59.85	56.34	60.94	63.66
1886-87	64.13	65.10	62.79	65.51	63.25	66.51

The tendency suggested by the foregoing figures is unmistakable; they show conclusively the steady growth of a sentiment in favor of popular education—a growth not confined to any one part of the country, but extending throughout its length and breadth.

This remark will be seen to possess greater force when it is considered that there has been an increase in the proportion of children enrolled as pupils, as well as an increase in the proportion of the number enrolled who attend regularly.

In the subjoined table, column two shows how many days' attendance each child six to fourteen years of age would have been able to obtain if the actual attendance had been divided up among such children equally. This quality possesses greater significance, as a measure of the amount of schooling given in a community, than perhaps any other single one that can be deduced from the data supplied.

NUMBER OF DAYS OF SCHOOL AND ATTENDANCE.

DIVISIONS.	The total attendance is equivalent to an attendance of each person 6 to 14 for days.			Average duration of school in days.
	2	3	4	
North Atlantic.....	143.40	121.23	189.62	
South Atlantic.....	67.13	74.94	127.74	
South Central.....	47.08	58.06	94.23	
North Central.....	103.33	92.10	144.66	
United States.....	100.89	96.79	153.04	

The greatest relative amount of schooling is given in Massachusetts—enough, in fact, to provide each child six to fourteen years of age with 194.79 days, or 9.74 months of twenty days each. From this the numbers range down to 39.51 days in Alabama, about one fifth of that given in Massachusetts.

The summary of column two exhibits vividly the disparity in the amount of schooling given in the different sections of the country. In the statistics given in the table relating only to the number of pupils going to school, without regard to the length of time they went, the inequality is considerable, yet still within bounds; but it is when the element of time is introduced, and the whole school population brought into consideration, that the disparity between the sections is brought into strong relief.

The "average duration of schools in days," given in column four, is the average length of session of the schools in days *when to each school is given a weight proportioned to its average daily attendance*. This is manifestly the proper basis upon which to compute the average number of days the schools were in session during the year. A school with ten times the average attendance of another school should count for ten times as much.

The greatest duration of attendance, 189.62 days, is seen to be in the North Atlantic division; the least, 94.23 days, in the South Central division, so far as can be ascertained by the reports.

Of the States which furnish data for tabulating the changes in the duration of schools, eighteen show an increase, eight a decrease, and three no change. This indicates a decided balance in favor of more days of schooling in a year, and this when taken into consideration with the increased regularity of attendance, shows a condition of affairs full of promise as regards the number of days' *schooling given to each pupil*.

High Schools.—By far the greatest public high-school enrollment is found in the North among the older States. In the North Atlantic division, out of every one thousand pupils enrolled sixty-four are in high schools. Maine leads in this respect, with seventy-seven out of every one thousand.

In the North Central States, twenty-eight pupils out of every one thousand, and in the Western States seventeen, are in high schools. The average for all the States reporting is thirty-five.

Private Schools.—So far as can be determined, private schools have received their greatest development in the North Atlantic division, where 11.17 per cent. of all pupils are enrolled in this class of schools; that is, out of every one hundred pupils enrolled in schools of all kinds, eleven are enrolled in private schools. Illinois and California show a large private-school enrollment. For all the States reporting, 8.56 per cent. of their total enrollment is to be found in private schools, leaving 91.44 per cent. for the public schools.

Displacement of Male Teachers.—The whole number of different teachers in the United States, according to the latest returns, is 352,231. A comparison of the increase of the whole number of male teachers with that of female teachers shows to what extent one sex is displacing the other. The different sections of the country present well-marked distinctions in this matter. In the North Atlantic States, at the present time, only twenty-three teachers out of every one hundred are male; then come the North Central and Western divisions, in which about one third of all of the teachers are male; in the two Southern divisions the males are in the majority—in the South Central division largely so. Though no considerable change in the relative number of teachers of each sex is noticeable for any two consecutive years, yet when the last ten years are

taken into account, a decided displacement of male teachers is apparent, extending through every section of the country, except in one instance. This displacement will be seen from the following tabular statement :

Percentage of male teachers at intervals of five years since 1876-77, computed from the Reports of the Bureau of Education.

Year.	The United States.	North Atlantic Division.	South Atlantic Division.	South Central Division.	North Central Division.	Western Division.
	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.	Per cent.
1876-77.	42.37	28.88	63.20	60.25	44.28	44.65
1881-82.	39.39	26.11	58.66	67.46	38.14	36.27
1886-87.	35.95	22.63	52.25	62.23	32.64	33.96

It will be observed that in the North Atlantic division, where the relative number of male teachers was smallest in 1876-1877, the displacement of males has been going on nearly as extensively as in any other section. "Whether this process can continue without detriment to the best interests of the schools, especially as regards the education of the older boys," says the Commissioner of Education, "is a question worthy of serious consideration."

Changes in Teaching Force.—The average annual number of changes in the teaching force to every one hundred teachers' positions varies exceedingly in the several States reporting the necessary data—so much so as to suggest a greater or less degree of inaccuracy in the reports made. The averages for the North Atlantic, North Central, and Western divisions, however, are tolerably uniform, being 25.41, 28.60, and 27.15, respectively. The want of permanency in the teacher's position is one of the greatest drawbacks to the progress of the public schools to a higher degree of efficiency.

Expenditure.—The total annual expenditure for common schools, according to late statistical reports, is \$115,103,886 ; and the expenditure is increasing at the rate of nearly \$4,000,000 a year. This amounts to an annual expenditure of about \$2 per capita of the total population ; \$10.27 per capita of the school population, six to fourteen years of age ; and \$15.40 per capita of average daily attendance. The schools are kept open an average length of one hundred and thirty-five days, so that each dollar expended provides about nine days' schooling.

It will be observed that this is based on total expenditure for school purposes. If it were based on the amount paid teachers only, as is done in some States, each dollar would yield about thirteen days' schooling ; and the annual expenditure per capita of population would be about \$1.40.

It will be seen from the subjoined table that the greatest relative expenditure for school purposes during the past ten years is in the western division ; and when it is remembered that seven out of eleven commonwealths of this division were, at the date of this report, still under Territorial government, and, therefore, deriving no revenue whatever from their school lands, the educational spirit of this section of our country becomes a matter worthy of special commendation. In traveling through the far West, the building most apt to attract the attention of the stranger's eye is the palatial school-house seen in almost every town.

The annual amount now expended for salaries of superintendents and teachers in the entire country is about \$80,000,000, and the amount is increasing at the rate of more than two and a half million per annum, or at the rate of nearly three and a half per cent. This exceeds the rate of increase of either the school population or average attendance.

Of the total amount expended for schools, 14 per cent. is now expended for sites, buildings, furniture, libraries, and apparatus ; 70 per cent. for the salaries of superintendents and teachers ; and 16 per cent. for all other purposes.

The older North Atlantic States are expending proportionately quite as much of their school moneys for sites, buildings, etc., as the newer North Central States, and considerably more than the Western States. The least relative expenditure of this permanent character is met with in the Southern States.

The annexed table shows the relative increase of school population, enrollment, and expenditures for school purposes in the various sections of our country during the ten years from 1877 to 1887.

INCREASE IN SCHOOL POPULATION—ENROLLMENT AND EXPENDITURES.

DIVISIONS. (For States included see page 291.)	POP. 6 to 14.		ENROLLMENT.		EXPENDITURE.	
	Increase in 10 years.	Percentage of increase.	Increase in 10 years.	Percentage of increase.	Increase in 10 years.	Percentage of increase.
North Atlantic.....	379,365	16.5	165,267	5.7	6,853,777	21.7
South Atlantic.....	390,215	26.7	609,965	58.7	2,546,757	50.4
South Central.....	634,102	36.8	693,299	83.4	2,184,932	65.4
North Central.....	965,458	32.0	1,105,804	29.7	18,164,767	51.1
Western.....	159,475	72.1	143,972	58.3	2,779,965	75.9
United States.....	2,528,705	29.0	2,718,307	31.1	32,530,108	41.1

There are a multitude of facts pertaining to the real efficiency of any school system which statistical tables do not and cannot show. Doubtless a comparison of our American school system with that of several of the European nations would not show well on paper. But if by their fruits

ye shall know them, we have nothing to fear from the comparison. With all their faults, the common schools of the United States have unquestionably produced a population unparalleled in the annals of history for general intelligence. It may be safely asserted that no other nation of the earth has ever had so large a proportion of reading, writing, thinking men and women as has our country at the present day ; and that these qualities are due to the beneficent influence of the common school is evidenced by the fact that they are everywhere most prominent in the sections where the schools have had the strongest foot-hold.
If you would know their history, look about you!

ANALYSIS OF CHAPTER XV.

Each State has its own system, yet all have much in common. Why?
 Why we may best study them in groups.

Statistics reduced to a common basis. Why?

The school-age.—Table. Why six to fourteen is here adopted as the basis of comparison.

STATES WITH COMPULSORY LAWS: (a) Wanting in the South. (b) In North Atlantic section. (c) North Central section. (d) The duration of the compulsory period.

PROPORTION OF CHILDREN ENROLLED : (a) North Central section in the lead. (b) The Southern sections still behind. Why? (c) In what sense the disparity largely disappears. (d) No account here taken of duration. (e) An additional advantage which the North possesses as compared with the South.—The negroes bear but little of the expense.

AVERAGE DAILY ATTENDANCE : (a) Total average attendance. (b) Yearly increase. (c) The greatest increase in the South. (d) The rate of increase exceeds the rate of enrollment. (e) The average for the United States, and what this means. (f) Regularity greatest in the Western section. (g) Least in South Atlantic. (h) Nearly uniform in most sections. (i) The influence of compulsory laws. (j) On what attendance must depend for improvement. (k) Now in advance of any former period. (l) What the table shows. (m) Table of average attendance, etc. (1) In each division. (2) Increase per year. (3) Increase per cent. each year. (4) Number of pupils in average daily

attendance to each one hundred of total population, population six to fourteen, and enrollment. (5) Pupils to each teacher.

TABLE OF DURATION OF SCHOOLS : (a) Average number of days for each child six to fourteen, each year. (1) Greatest in Massachusetts. (2) Least in Alabama. (b) Attendance in days to each pupil enrolled. (c) Average duration of schools in days, when each school is given weight in proportion to its size. (1) Greatest in North Atlantic. (2) Least in South Central. (d) Increase in number of days as well as in regularity.

HIGH-SCHOOL ATTENDANCE : (a) Greatest in North Atlantic. (b) But few public high schools in the South. (1) District of Columbia. (2) Georgia. (c) North Central division. (d) United States.

PRIVATE SCHOOLS : (a) In North Atlantic. (b) Illinois and California. (c) United States.

TEACHERS : (a) Whole number. (b) Ratio of displacement of males. (c) Table. (d) What it shows. (e) Change in the teaching force.

TOTAL ANNUAL EXPENDITURE : (a) Increase. (b) Per capita. (c) six to fourteen. (d) Of average attendance. (e) What each dollar produces. (f) The same when reduced to teacher's wages.

The greatest expenditure per capita in the Western division.—Why this is especially praiseworthy.

ANNUAL AMOUNT EXPENDED FOR SUPERINTENDENTS AND TEACHERS : (a) Rate of increase. (b) Exceeds that of population and attendance.

PROPORTIONAL RATES OF EXPENDITURE FOR DIFFERENT PURPOSES : (a) School-house fund, 14 per cent. (b) Salaries, 70 per cent. (c) Contingent, 16 per cent. (d) New England. (e) West. (f) South.

Table of increase in ten years in sundry matters.

SUPPLEMENTARY QUESTIONS.

What can you say of the work of Horace Mann in shaping the present school system of the United States?

Mention some others who have borne a prominent part.

Do you agree with Dr. Bacon that centralization in management is fatal to the real efficiency of the schools? Why, or why not?

How do you account for the fact that in the North Central division of the United States there has been but 5.7 per cent. of increase in attendance during the last ten years, while the school population has increased nearly three times that amount?



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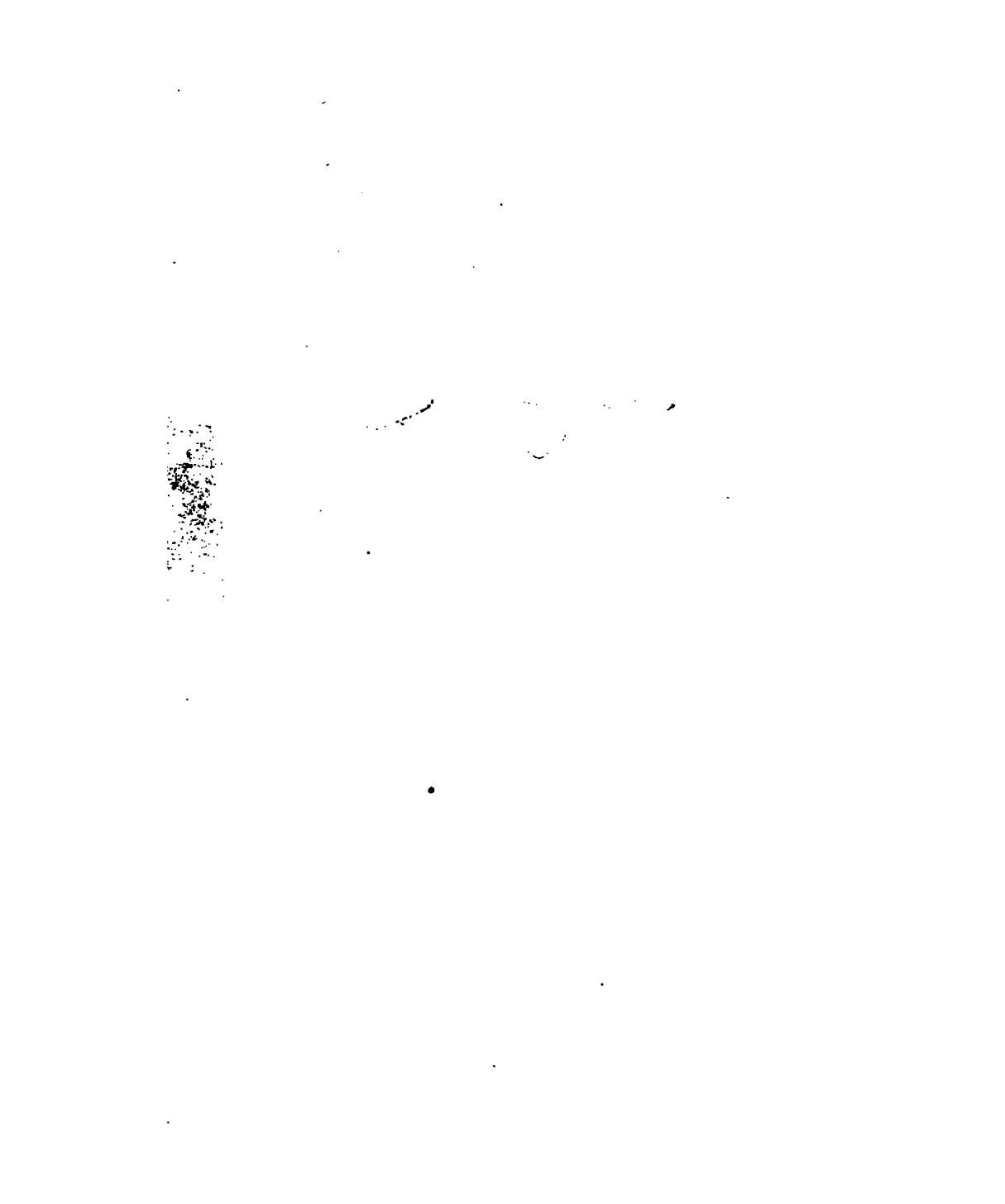






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